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BIENNIAL REPORT
MONTANA
STATE BOARD OF HEALTH
1903 - 1904

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Second Biennial Report
of The
Montana
State Board of Health

From
December 1, 1902
to
November 30, 1904

THOS. D. TUTTLE, M. D., Secretary

"INDEPENDENT PUBLISHING COMPANY, HELENA, MONTANA."



Personnel of the Board.

Hon. Joseph K. Toole, Governor, ex-officio.....	Helena
Hon. James Donovan, Attorney General, ex-officio....	Helena
Wm. Treacy, M. D., President.....	Helena
(Term of office expires Jan. 31, 1905.)	
J. L. Belcher, M. D.....	Townsend
(Term of office expires Jan. 31, 1905.)	
LeRoy Southmayd, M. D.....	Great Falls
(Term of office expires Jan. 31, 1907.)	
J. W. Wade, C. E.....	Helena
(Term of office expires Mch. 7, 1907.)	
Thos. D. Tuttle, M. D., Secretary.....	Helena
(Term of office expires May 5, 1905.)	

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**OFFICE OF THE
SECRETARY OF THE STATE BOARD OF HEALTH**

Helena, Mont., December, 1904.

To Hon. J. K. Toole, Governor of Montana:

Sir: In compliance with the laws of this State, I present to you the accompanying report for the two years ending November 30th, 1904. Very respectfully,

THOMAS D. TUTTLE,
Secretary of the State Board of Health.

INTRODUCTION.

This is the Second Biennial Report of the State Board of Health and is for the two years ending November 30th, 1904. It is arranged in three parts.

The first part embraces the general work of the board, minutes of regular and special meetings, reports of secretary and committees, proceedings of the first annual meeting of health officers in Montana, a list of all physicians practicing medicine and surgery in the state, together with the school from which they graduated, date of graduation, date of registration in the state and age at date of registration (except in those cases where the physician is practicing without a license, when he is simply designated as "no license").

The second part contains the result of investigations made into the nature and cause of "Spotted Fever" in the Bitter Root Valley.

The third part contains the reports from the various health officers over the state, tabulated statements of communicable diseases reported to the state board, and the report of the bacteriologist.

While this report is as complete as it is deemed advisable to make it, it by no means contains all the work performed by the state and local boards of health. We have attempted to give you a general idea of the workings of this board without going into detail more than was necessary to accomplish the desired ends.

Part I.

Proceedings of the Board.

Pursuant to call, the Board met in regular quarterly session at 4:15 p. m. February 3d, 1903. There were present Dr. Wm. Treacy, President; Attorney General Donovan, Dr. J. L. Belcher and Dr. A. F. Longeway, Secretary.

The reading of the minutes of the previous meeting was dispensed with. The proposed repeal of the meat and milk inspection law was discussed and the following resolution, offered by Attorney General Donovan and seconded by A. F. Longeway, was unanimously adopted.

At a regular meeting of the State Board of Health, held at their office on the third day of February, a motion was made and seconded as follows:

It is moved and seconded that it is the sense of the State Board of Health that the bill now pending to repeal the meat and milk inspection law should be defeated. It is the sense of this Board that the said law is a wise and sanitary measure to promote the health and well-being of the people of the State of Montana, and that the law should be amended in the following particulars:

That Section 1 should be amended so as to read as follows:

Section 1. That no person shall be appointed to the office of Meat and Milk Inspector unless he is a graduate in good standing of some regular and reputable veterinary medical college, recognized by the American Veterinary Association and admitted to practice within the State of Montana, or who is a graduate of some regular school of medicine, and shall have obtained a license to practice medicine within the State of Montana from the State Board of Medical Examiners, and before such appointment he shall be required to file or exhibit his diploma as a graduate either of a veterinary college or a regular school of medicine.

And the law should be further amended as to subject any city official, Mayor or City Council, to a fine not exceeding five hun-

dred dollars, for a failure to enforce the provisions of this law.

That a copy of said resolution be furnished to the House and Senate of the Legislature of Montana.

The secretary was instructed to present a copy of the resolution to the Committee on Towns and Counties, to both House and Senate at present in session, protesting against the repeal of said act, and urging that the necessary amendments be passed.

In general discussion upon the "Spotted Fever" situation in Bitter Root Valley it was suggested that it would be advisable for the secretary to enter into correspondence with Senator Gibson and Surgeon-General Wyman, prevailing upon them to use their influence to send an expert from the National Bureau of Public Health and Marine Hospital Service to the field to carry on this investigation where we left off last season.

The letter from Secretary Probst, of the Ohio Board, regarding some internal remedy as a prophylactic against smallpox, was generally disapproved. The President and Secretary of the Board were appointed a committee to confer with Dr. Knowles and Senator Kohrs regarding appropriation bill about to be introduced in this Legislature, providing for the establishment of a State Bacteriologist, also a State Chemist, with laboratories and the equipment for the same.

WM. TREACY, President.

A. F. LONGEWAY, Secretary.

Pursuant to a regular call, the regular quarterly meeting convened in the Health Office in the Capitol Building in Helena, May 5th, 1903, at 2:30 p. m. Present, Governor J. K. Toole, Drs. Wm. Treacy, President; Belcher, Tuttle, Southmayd and A. F. Longeway, Secretary, and Mr. J. W. Wade.

Minutes of previous meeting were read and approved.

The matter of renovating slaughter house at Missoula was discussed and Secretary instructed to communicate with the County Attorney requesting him to see that the same was put in sanitary condition, or take such steps as appeared advisable to him.

The Governor then read the amendment to the Board of Health Bill, and it was moved to elect a Secretary according to the amendment.

Dr. A. F. Longeway was nominated by Dr. Belcher; Dr. T. D. Tuttle was then nominated by Mr. J. W. Wade and seconded

by Governor Toole. There being no further nominations and the name of Dr. Longeway not having received a second, Dr. Thomas D. Tuttle was unanimously elected Secretary to the State Board of Health of Montana.

The following suggestions from the retiring Secretary were read and ordered spread upon the records, to be considered at the next meeting:

Gentlemen: I beg to urge upon your honorable Board the importance of following out the line of action already suggested by way of furthering and continuing the investigation of the so-called "Spotted Fever" in the Bitter Root Valley, and the inauguration and instituting of a Health Officers' Convention, to be held this season in a central and convenient place, whereby all Health Officers and others interested in the welfare and maintenance of the public good health may meet and listen to the addresses of competent and advanced workers upon the subjects, for the interchange of ideas, also the mutual discussion and expression of prevailing customs upon quarantine and fumigation.

I sincerely believe that if this Board adopted the suggestion offered by me some time ago, of issuing a pamphlet or health journal of modest and instructive "make up" upon the general topics of public health, together with school sanitation and prevention of spread of contagious and infectious diseases, which would be freely distributed to sanitary officers and educational instructors, that much benefit would be derived therefrom, and would tend to bring about a uniform regulation of quarantine, and lead to free discussions and suggestions of the most proficient and practical means to accomplish this much desired aim. I have no doubt that should you decide to adopt this plan, that a nominal subscription fee could be charged for the same, which would serve a double purpose of aiding to defray the necessary expense and also admit the same to the public mail at the rate of postage that other publications enjoy.

(Signed)

A. F. LONGEWAY.

Upon the suggestion of Mr. Wade and discussion by the Board of the unsanitary condition of cesspools and privy vaults in small outlying towns, the secretary was instructed to prepare a circular letter upon plans to be furnished by Mr. Wade that same might be abolished.

There was considerable discussion regarding the period of quarantine of scarlet fever, measles and diphtheria, there being a great variance in the time of quarantine in different parts of the state, and it was decided that four weeks be the minimum time of quarantine for smallpox, diphtheria and scarlet fever and three weeks for measles.

There being no further business the Board adjourned.

WM. TREACY, President.

THOS. D. TUTTLE, Secretary.

Health Office, Helena, Mont., Aug. 4, 1903.

Pursuant to call by Secretary, Board met in regular quarterly session at 3:40 p. m. Meeting called to order by Dr. Wm. Treacy, President. There were present Hon. Joseph K. Toole, Drs. Jas. L. Belcher and Wm. Treacy, Mr. J. W. Wade and Dr. Thos. D. Tuttle, Secretary.

The minutes of the previous meeting were read, corrected and approved.

The following report for the quarter ending July 31st was presented by the Secretary and approved.

During the three months which I have held this office much of the time has been consumed in getting the work systematized, and in endeavors to get the several local and county health officers to take more interest in the work and furnish prompt and complete reports to this office.

I have written a letter to every physician and every health officer in the state regarding the minimum time of quarantine for certain communicable diseases, as adopted at your last meeting. In addition to this I have written a personal letter to each physician, urging him to conform to the laws regarding reporting communicable diseases. Having discovered that the law regarding reports of births and deaths to the county clerks was not being complied with I attempted to secure this data from the profession for the present year, but my efforts in this line met with such scant response that the data secured is without value. I then undertook to secure this data from the undertakers, but here again failed to secure the desired result, as neither the doctors nor undertakers seem inclined to do anything that is not absolutely demanded by law, and that law backed by a heavy penalty. This does not apply to all, for a small proportion of

both doctors and undertakers promptly responded to my requests for this data.

Through the efficient health officer at Butte and the undertakers at Helena I have been able to secure quite complete records of the deaths in these cities, but records received from other cities have been of no value. I have, therefore, come to the conclusion that the only way to secure this data is by the absolute enforcement of the law that requires a quarterly report of births and deaths to the county clerk and recorder.

In accordance with your instructions, I wrote a letter to each Board of County Commissioners and to the Mayor of each incorporated town or city regarding the disposal of excreta and suggested a simple plan for a privy vault. The plans submitted were kindly furnished by Mr. J. W. Wade and are herewith submitted for your inspection.

I find that in the rules regarding sanitation, in almost every county there is a clause that covers this matter, but I also find that there is practically no effort made in any county to enforce such regulations.

I visited the bacteriologists investigating the "Spotted Fever" in the Bitter Root Valley, but was unable to learn that they had made any progress over the work accomplished last year.

I corresponded with most of the secretaries, State Boards of Health, over the country and now receive weekly or monthly reports from most of them. In addition I have received about fifty volumes of reports of the work being done by other State Boards of Health, constituting a nucleus for a library for this office. I have also received reports on matters pertaining to public health and sanitary science from several U. S. officers and from various experiment stations. These are all very valuable to us in enabling us to avoid the mistakes made by others as well as profit by their experience with measures which have proven most successful in their hands.

I visited the health officers in Gallatin, Park, Sweetgrass, Yellowstone and Carbon counties. In each place I found the health officer in doubt regarding some subject pertaining to the work of his office or dormant as regards enforcing the law. I believe these visits will pay in the improved reports received from these counties and in the increased efforts to suppress communicable diseases in them.

I have prepared and submit herewith a set of rules for local and county health officers which will answer many questions propounded by them and at the same time tend to stimulate those who are inclined to let the work take care of itself.

Rules for Local and County Health Officers.

Every local or county health officer is the custodian, to a very large degree, of the health of the people within his district. On his efforts will depend not only the prevention of the spread of infectious and contagious diseases, but the prevention of any disease due to unsanitary conditions within his district. He has the power to quarantine any and all cases of contagious diseases and the attending physician or any one else can not release those thus quarantined, the health officer himself being the only one who can raise the quarantine which he has established. He has absolute power to abate any nuisance that may be dangerous to public health.

1. Every local or county health officer is required to file his his name and P. O. address with the Secretary, State Board of Health, immediately upon receiving his appointment.

2. Each local or county health officer is required to receive reports from physicians and householders of any infectious or contagious diseases within his district. If he believes that an infectious or contagious disease exists within his district which has not been properly reported it is his duty to investigate the matter and if such disease is found to exist it is his duty to file complaint with a Justice of the Peace against the party failing to report the case.

3. As soon as notified of the existence of a case of Scarlet Fever, Smallpox, Diphtheria or Measles, it is the duty of the local or county health officer to quarantine the premises where such disease exists, by placing a card bearing the name of the disease in large letters in a conspicuous place on the front of the house and giving notice to the householder that such property is under quarantine until such time as the notice **shall be removed by the health officer.**

4. Whenever a local or county health officer is notified that a case of smallpox exists within any house or building he shall immediately quarantine such premises, together with all persons therein. After the patient has been removed from the premises the health officer shall immediately vaccinate each

person in the house or any person who had been in the house after the disease appeared, and who has not been vaccinated, successfully, within one year previous to the date of the exposure. Any person refusing to allow the health officer to vaccinate him or her or to have his or her family physician perform that service shall be quarantined for a period of at least two weeks from the date of last exposure.

5. Whenever any local or county health officer shall be reliably informed that any person has broken quarantine or in any way disobeyed the quarantine laws it shall be the duty of such health officer to file complaint against such offending party or parties with a Justice of the Peace.

6. Whenever the local or county health officer places a quarantine sign on any property that property shall reemain in quarantine until the health officer shall remove such sign. No quarantine sign should be removed until after the infected portions of the property have been thoroughly disinfected under the direct supervision of the health officer. When the property has been thus disinfected the health officer shall give a statement, in writing, at the request of the householder, that his or her property has been properly disinfected.

7. It is the duty of each local or county health officer to report all cases of infectious or contagious diseases that may come to his notice to the Secretary, State Board of Health, on blanks provided for such reports, giving all the information called for on such blanks. These reports must be mailed to the Secretary at least once in each month. The date of release from quarantine must be given in each case. This will often require a repetition of the case in your reports.

8. Special blanks are provided for reporting smallpox and the information called for on these blanks must be reported in detail. These blanks will be furnished on application to the Secretary, State Board of Health.

9. When any local or county health officer finds that there have been no infectious or contagious diseases within his district during any month he shall so report to the Secretary, State Board of Health, at the end of the month, using a postal card for such report if he so desires.

10. Every case of smallpox, scarlet fever or diphtheria must be quarantined for at least four weeks and every case of measles

for at least three weeks, and as much longer as the health officer may deem it necessary.

11. Every county health officer must make a report of the sanitary conditions in his county to the Secretary, State Board of Health, at least once a year, during the month of October.

12. Any local or county health officer failing to report infectious or contagious diseases to the Secretary, State Board of Health, as required, or failing to report the date of release from quarantine of any case of smallpox, scarlet fever, diphtheria or measles, or who shall release any one suffering from these diseases from quarantine under the times mentioned above is subject to prosecution for non-performance of duty.

13. Any local or county health officer who shall fail to take the proper steps to abate, within a reasonable time, any nuisance dangerous to public health or constituting an unsanitary condition, shall be subject to prosecution for non-performance of duty.

14. Whenever it shall come to the notice of the Secretary, State Board of Health, that any local or county health officer, after having been duly notified, has failed, neglected or refused to abate any nuisance dangerous to public health, or when it shall appear to him that any local or county health officer has failed to report infectious or contagious diseases as required by law, or has failed to make reasonable efforts to secure reports of such diseases within his district, or when any local or county health officer shall release from quarantine any case of smallpox, scarlet fever or diphtheria under four weeks, or any case of measles under three weeks, it shall be his duty to make an investigation and, if the evidence is sufficiently strong to show that such local or county health officer has failed in the performance of his duty, it shall be the duty of the Secretary, State Board of Health, to file complaint against such local or county health officer with a Justice of the Peace for non-performance of duty.

15. When any property is quarantined on account of smallpox, scarlet fever or diphtheria the health officer shall notify the householder that any one, except the attending physician, who shall leave the premises during the time the property is under quarantine, shall be guilty of breaking quarantine. When any property is quarantined on account of measles the health officer shall notify the householder that the children of the

house must be kept at home, that no other children or adults shall be allowed to visit the house, and that no one can leave the premises except such adults as are engaged in business or profession and then only when they do not go into the room occupied by the party suffering from the disease mentioned.

16. The following infectious and contagious diseases must be reported: Smallpox, Scarlet Fever, Diphtheria or Membranous Croup, Measles, Chicken-pox, Typhoid Fever and Tuberculosis.

Adopted by the State Board of Health of Montana, August 4th, 1903.

THOS. TUTTLE, M. D.,

W. TREACY, M. D., President.

Secretary.

In the matter of slaughter-house near Missoula: As directed by this Board at its last meeting, I wrote to the county attorney of Missoula county regarding the matter, but received no reply from him, and being unable to learn that he had taken any action in the matter, I took it up with the county health officer of Missoula county. His reply, herewith submitted, indicates that he has brought the matter before the county board of health, but that they have refused to authorize him to take any steps in the matter. However, the matter would come under the duties of the meat and milk inspector and the slaughter-house has been cleaned and placed in a sanitary condition.

In conformity with that clause of the law which provides that we shall appoint local health officers or advisory boards in each town and village in the state, I prepared a list of physicians in such towns and villages and submitted it to the members of the Board, and by direction of a majority of the members of the Board, selected a physician in each town and appointed him to this office, to serve without pay. The names of those who consented to serve in this capacity appear in the copy of the "Bulletin," to be presently presented.

I made efforts to secure transportation over the railroads in the state in order to reduce the expense when required to travel over the state, but was unable to secure any accommodations from either of the roads..

Finally, I have prepared a quarterly report under the name of the "Montana Health Bulletin," and submit the copy for your consideration. Respectfully submitted,

(Signed)

THOS. D. TUTTLE, Secretary.

Correspondence from both the Flathead county health officer and the Mayor of Kalispell regarding a threatened epidemic of typhoid fever and expressing a doubt as to the quality of the city water supply were submitted. The Secretary was directed to instruct the local health officer at Kalispell to send a sample of the city water to Emil Starz, State Bacteriologist, for examination.

The rules for local and county health officer were approved and the Secretary instructed to submit a copy to the Attorney General for an opinion regarding their legality, and if his opinion should place them within the limit of the law, that they be published and distributed to the various local and county health officers.

The copy of the "Montana Health Bulletin" was read, corrected, approved and ordered published and distributed.

The resignation of Emil Starz as State Bacteriologist was presented. The Secretary having learned that his resignation was due to the fact that he had never been formally notified of his appointment and to the fact that he had been unable to secure proper materials for performing the work, the Secretary was instructed to formally notify Mr. Starz of his appointment and to see that he was supplied with the necessary materials for thoroughly performing the duties of his office.

The following resolution regarding the examination of the eyes and ears of school children, adopted by the Montana Medical Association, was presented.

Resolved, That the Medical Association of Montana approves the plan of examination of the eyes and ears of school children as recommended and practiced by the Illinois State Board of Health and approved by the American Medical Association, and many other organizations. That we recommend said plan to our State Board of Health and Board of Education for their approval and action. That hereafter every child will be carefully examined by the teacher at least once a year and records made according to the prescribed simple forms printed for this purpose. That the parents of each child who is found defective in sight or hearing be notified, that said parents may act as they see fit.

Similar resolutions from the American Medical Association and communications from the Illinois State Board of Health regarding the methods in use were presented.

The Secretary was directed to notify the trustees of each school district that this Board approves such plan of examinations and urges them to institute the same in each school in our state, supplying the teachers in each school with the necessary cards for testing the eyes, instructions for testing sight and hearing, and cards printed in blank form for notifying the parents of any defects that may be found.

The Secretary was directed to write to the trustees of each school district in the state directing that all schoolhouses in any district where there has been a contagious or infectious disease within the last twelve months, be thoroughly disinfected, under the direct supervision of a local or county health officer, before the opening of the school term this fall, and at any time during the year when an epidemic of any contagious or infectious disease appears in the district.

The matter of an unsanitary cesspool existing at the property occupied by the Montana Children's Home in Kenwood was brought before the Board. This nuisance having been reported to the county health officer of Lewis and Clarke county on June 26th, 1903, and no action having been taken in the matter, the Secretary, State Board of Health, was directed to confer with the County Attorney of Lewis and Clarke county and have him direct that said nuisance be eradicated within forty-eight hours, and should this notice fail to bring the desired result, that the attorney for Lewis and Clarke county be directed to bring such action as may be necessary to abolish said nuisance.

There being no further business before the Board, the meeting adjourned.

(Signed)

WM. TREACY, M. D., President.

THOS. D. TUTTLE, M. D., Secretary.

Health Office, Helena, Mont., Nov. 3, 1903.

Pursuant to call, Board met in regular quarterly session at 3 p. m., Dr. Wm. Treacy, President, in the chair. Those present were Drs. Treacy, Belcher, Southmayd, Mr. J. W. Wade and Dr. Thos. D. Tuttle, Secretary.

Minutes of previous meeting read and approved.

The following report of the Secretary for the quarter ending October 31st was read and approved:

The number of infectious and contagious diseases reported

for the quarter was much smaller than for the previous quarter. The records of last year are in such shape that I am unable to give comparative figures for the corresponding periods. Typhoid fever has been prevalent at many points over the state. Prompt and efficient work on the part of the local and county health officers could prevent much of this, for in some cases, at least, it is due to unsanitary surroundings. The cases reported do not show the extent of the disease, as your Secretary has learned of several cases that were never reported. Some of these cases were attended by physicians, while others had no physician. While my information in regard to these cases is of sufficiently reliable origin to make me very positive that the cases existed, it is not strong enough to enable a successful prosecution of the parties who have failed to report the cases. Positive information could be secured by local or county health officers, but for fear of losing a patient or a friend, many are inclined to accept such reports as may be made to them and make no effort to secure complete reports. Local health officers are required to have unsanitary conditions abolished, but how are they to know that these conditions exist unless they are reported to them? A report that is not at all likely to be made except by some disgruntled neighbor, in which case the conditions are apt to be greatly exaggerated. I believe it would pay every county many times over if each would require its health officer to visit every town and village and every ranch employing ten or more men in the county, to see that proper sanitary conditions are maintained. These visits should be made during the spring of each year. Under the present conditions the health officer can not be expected to make such visits of his own volition or to take any very active steps to enforce sanitary measures. In the majority of counties the work of treating the poor is let to the lowest bidder and the one receiving this contract is expected to donate his services as county health officer. Under such circumstances we can not expect very energetic work in the way of performing the duties of health officer.

If sanitary conditions are to be properly inspected and maintained, the health officer must be paid a reasonable fee for such work and enough to justify him in making an annual trip over the county (a task of no small proportions in many of the counties of the state).

A health officer who strictly enforces the law and demands sanitary regulations must of necessity create some hard feelings among those who think they have a right to keep things as they like on their own premises, regardless of the effect it may have on the neighbors, and no one is going to invoke this personal animosity unless he is paid for it, no matter how thoroughly he may be impressed with the importance of the work, and many will shirk this part of their work unless there is a penalty attached to failure to perform such duties. So far as I am able to learn there is no penalty provided for a health officer who fails to perform the duties required of him and from the way some of them respond to notices of unperformed duties, I judge they have the same impression.

A well-paid county health officer and one who performs his duties would save money to any county by reducing the number of sick poor demanding treatment and support at the expense of the county, and save money for the taxpayer by reducing the sickness in his family. This point is well illustrated below in my report regarding the epidemic at Judith. Prompt and efficient action on the part of certain health officers can be secured only by legislative enactment, fixing a heavy penalty on any health officer who fails to perform the duties required of him.

The matter of a defective cesspool at Kenwood was reported to the county attorney of Lewis and Clarke county, who notified the agent of the property that the condition must be remedied within forty-eight hours, and in much less than the time limit a new cesspool had been installed. This illustrates the ease with which the county health officer could have abolished this nuisance two months before, had he been inclined to perform the duties of his office.

In accordance with your directions, I dictated the following letters to the clerk of each school district in the state. So far as I have been able to learn, the directions with regard to disinfecting the schoolhouses have been pretty thoroughly carried out, but no attention has been paid to your recommendations regarding the examinations of the eyes and ears of the school children.

To the Trustees of all School Districts in the State of Montana:

The State Board of Health of Montana, being convinced that a very large proportion of the school houses in the state are

infected with germs of contagious diseases, and that many children acquire such diseases through the agency of such infected school houses, it is the opinion of this Board that all school houses should be thoroughly disinfected before the opening of the school year. Therefore, it is hereby directed that all school houses in any district of the State of Montana in which there has been any contagious disease within the last twelve (12) months, be thoroughly disinfected, under the direct supervision of a local or county health officer, before the opening of the fall term of school; and at any time during the year when an epidemic of any contagious disease occurs in the district.

By order of the State Board of Health of Montana, Helena, Mont., August 4th, 1903.

WM. TREACY, M. D.,

President.

THOS. D. TUTTLE, M. D.,

Secretary.

To the Trustees of all School Districts in the State of Montana:

At a meeting of the State Board of Health, held at Helena on August 4th, 1903, a resolution from the Montana State Medical Association and from the American Medical Association urging the examination of all school children's eyes and ears, was presented. The Board considers the plan of examination not only practical, but highly commendable and unanimously passed a resolution to the effect that all school trustees in the state be urged to establish such methods of examination in each school in the state.

The plan of examination proposed, consists of a brief and simple examination of each child's eyes and ears once a year by the school teachers.

The examinations, while practical in character, are made in the simplest manner possible and are thoroughly unobjectionable in every way. The teacher simply asks ten questions, which disclose the existence of important eye and ear diseases. The examination is so simple that the teacher can easily examine a child in five minutes.

The teacher will, of course, be unable to specify the character of the child's affliction, but she will learn that a defect exists, which is sufficient. The remainder of the investigation must be made by a physician. If the questions and answers disclose the existence of some eye or ear defect in the pupil, the parent

is notified by a card of warning. This card merely states that an eye or ear defect is believed to exist and the parent is earnestly requested that the matter be attended to, as the existence of such defects necessarily retards school progress and militates against the well-being of the child.

Action by parents is not compulsory, but no parent is apt to disregard this advice. If medical advice is necessary the parents, of course, are at perfect liberty to consult any physician whose services they desire. It is believed by the State Board of Health that, if this plan is adopted throughout the State, it will necessarily be of unmeasured benefit to school children, as eye and ear diseases will be disclosed, that may be benefitted by proper treatment, and the children will therefore be placed in better condition to commence the battle of life and acquire a desirable education.

This plan is now in use quite generally throughout the United States and is giving satisfaction wherever used. In some states the examination is required by law.

The State Board of Health, therefore, trusts that school authorities will see that this practical, simple, inexpensive, unobjectionable and efficient method for caring for the eyes and ears of school children throughout the State be adopted in all public schools in the State of Montana.

The State Board would also ask that a report be made to the Secretary by each school, of the number of children examined and of the number presenting defects of vision or hearing. Statistics of this character are of interest to the Board and enhance the value of its records.

The necessary cards for making these examinations and printed instructions for the teachers can be had from most manufacturing opticians, or through the Secretary, State Board of Health, at a cost of about thirty cents each. Cards of lighter weight can be had at a cost of about twenty cents, but the heavier is much to be preferred as the lighter ones soon become torn or bent so as to distort the letters and prevent a satisfactory examination.

The notification cards or cards of warning should be printed at your home office. We would suggest that they read as follows:

Mr.....

After due consideration, it is believed that your child has

some eye ear trouble, for which your family physician or some physician who makes a specialty of diseases of the eye or ear should be consulted.

It is earnestly requested that this matter be not neglected, as children with eye ear diseases can not attain the best results in school.

Respectfully,

.....
It will be observed that these notices are not in any way obligatory. They do not require any thing of the parent, who is at perfect liberty to take notice of the warning or not, as he sees fit.

It is urged that a record of these tests be kept in all schools and that all pupils, except those in the first grade, be examined every year. One important matter should be remembered in these tests, viz: They are not conducted solely for the purpose of determining ocular conditions requiring the use of glasses. Many seem to have the idea that they simply detect errors of refraction, but such is not the case, as they will, if properly carried out, detect the existence of almost all serious ocular diseases. Of course the teacher does not know what disease may be found under an oculist's examination, but she will know that something is wrong, which is sufficient. Those passing the tests are not re-examined for one year, when they should undergo another examination, as morbid conditions may have developed in the meanwhile. Those having defective eyes or ears are simply given a card of warning to hand to their parents. This card merely states that an eye or ear disease is thought to exist and the consulting of a physician is therefore advised. The matter is not compulsory, as the parent may do as he likes and may consult any physician he may choose. The responsibility is simply thrown on the shoulders of the parent, where it belongs, and nothing should be said to make parents regard the request as an arbitrary demand.

By order of the Board,

THOS. D. TUTTLE, M. D.,

W. TREACY, M. D.,

Secretary.

President.

The rules for local and county health officers were submitted to the Attorney General and his opinion indicating that they were within the law and could be strictly enforced, were printed and a copy mailed to each health officer in the state.

Three thousand copies of the "Bulletin" were printed and 2,000 distributed over the state, the other 1,000 being reserved for any who might ask for them, as I was unable to determine all who might be interested in the matter.

Materials required by the State Bacteriologist have been ordered. Samples of water from Kalispell were submitted to him and his report on the same follows:

Helena, Mont., September 3d, 1903.

To the Secretary of the Montana State Board of Health, T. D. Tuttle, M. D., Helena, Mont.:

Dear Sir: In compliance with your instructions, I submit to you herewith a copy of the report on the Kalispell water supply, forwarded to Dr. M. Bottorf, City and County Health Officer, of Kalispell, Mont. The sample of water came into my possession August 21st, 1903. The object of the bacteriological examination was to determine the presence or absence of disease-producing micro-organisms, principally of those which are generally found in sewage and faecal matters of man and animals and which comprise the so-called Coli group. The counting of developed colonies of Bacteria from an accurately measured quantity of water was also deemed advisable and, therefore, nutrient gelatine plates were at once inoculated with 5 drops, $\frac{1}{2}$ cc. and one (1) cc. of the water respectively. The inoculated plates were left at room temperature, at that time 69.0 F., for 36 hours and the developed bacterial colonies counted. The result was as follows:

First plate inoculated with 5 drops of water developed 1980 bacterial colonies per 1 cc. of water.

Second plate inoculated with $\frac{1}{2}$ cc. of water developed 2150 bacterial colonies per 1 cc. of water.

Third plate inoculated with one (1) cc. of water developed 2470 bacterial colonies per 1 cc. of water.

In average, 1 cubic centimetre of the water developed 2200 bacterial colonies.

This is a greater number than is generally allowed for a first-class water supply, but it must be borne in mind that the sample was in transit for at least 15 or more hours and not

packed on ice, conditions very favorable for a multiplication of the micro-organisms originally contained in the water sample.

Regarding the nature of the developed bacterial colonies upon the nutrient media it was found during further investigation that all were of saprophytic character. None of them produced gas in glucose nutrient gelatine and in the fermentation tubes inoculated with increasing quantities of the water and which were filled with sterilized 2 per cent Glucose Peptone Buillon. Three different kinds of saprophytic bacteria colonies were obtained during plate culture experiments, besides several fungus growths. Two of the colonies of bacteria found were chromogenic, one of a light orange color, the other produced a beautiful green fluorescence. The latter was also liquefying the nutrient media with production of a putrefactive odor. The third kind was a slender, slightly motile bacteria forming smooth round grayish white colonies and was a strictly aerobic saprophytic germ, not forming gas in glucose media and not liquefying the nutrient gelatine, upon which it was growing.

In order to separate as much as possible the saprophytic germs from parasitic pathogenic micro-organisms which might be present in the water, the methods of Parietti was followed. That is the inoculation of carbolized nutrient beef bouillon with measured quantities of the water and incubating the inoculated flasks for not less than 60 hours at a temperature of 37.5 ° Celsius. I employed for that purpose larger quantities of water, viz: 5, 10 and 20 cc. in order to receive the best possible results, should any typhoid or coli bacilli be present. The latter two develop almost solely by the method just mentioned and can, therefore, be easily separated from the other bacteria.

In my experiments I received not even the slightest turbidity after 60 hours' incubation and today my inoculated flasks and tubes are entirely clear and free from any sign of bacterial growth.

Thus having failed to obtain positive results in regard to the presence of disease-producing germs, I was satisfied that the water can not be at present the source of the dissemination of water-born diseases.

But I am also inclined, judging from the excessive number of saprophytic germs (that is, such as live on dead organic matter) that there prevail conditions in the water supply which are not exactly ideal and which can easily be bettered by thor-

ough cleaning. I am not familiar with your system of water supply, but if there are wells they should be cleaned and pumped out from time to time, otherwise the quality of the water might sometime suffer materially.

In order to satisfy myself further of a probable pollution from surface drainage of waste waters from human and animal sources, I determined the amount of chlorine in the water and found 0.45 parts per 100,000 parts of water, an amount far within the limit of the standard for uncontaminated wholesome drinking water.

In conclusion I will say that the water is at present a safe source for drinking and domestic purposes and by application of simple sanitary measures such as cleaning out the storage wells, etc., from time to time, the management of the water supply can give the people of Kalispell a still greater guarantee for the wholesomeness or their drinking water.

Respectfully submitted,

EMIL. STARZ.

Investigation of Scarlet Fever at Bozeman.

On August 20th the county health officer of Gallatin county telephoned me to the effect that there were two cases of scarlet fever at Bozeman who were not observing the quarantine regulations and that the local health officer would take no action in the matter, and requested me to come there and look into the matter. I found that the premises where the disease existed were posted, but that the people living in these houses had not been informed as to what was expected of them while under quarantine, instructions in the matter being left to the family physician, who had instructed them as he saw fit without reference to the law. I found the people of both households ready and willing to comply with the law as soon as they were informed of what was expected of them. This impressed me with the importance of having printed instructions for people under quarantine and I have prepared a set of such instructions and submit them for your consideration.

QUARANTINE NOTICE.

This notice must be given to the householder by the local or county health officer when he places a house under quarantine for Scarlet Fever.

Your property is now under quarantine for Scarlet Fever, and you are hereby notined to observe the cautions mentioned below.

Quarantine in Scarlet Fever (also known as scarlatina, or scarlet rash), must be absolute. No one can enter or leave the premises until such time as the quarantine shall be discontinued and the sign removed by the local or county health officer. Quarantine can not be raised by any one except the health officer, and by him only after thorough disinfection as described below. The discontinuance of visits by your physician does not release you from quarantine. The time of quarantine for scarlet fever patients must be not less than four weeks from the first appearance of the disease. Quarantine may be raised thereafter on condition that the process of desquamation is complete, as determined by the examination of the local or county health officer. Any one leaving the premises while under quarantine is guilty of breaking quarantine and is subject to a heavy fine or imprisonment.

Disinfection.

Disinfection of a house after the removal or recovery of a Scarlet Fever patient should be as follows:—

1. Aerial Disinfection. For this Formaldehyde is probably the best disinfectant known at present. This may be used either with an apparatus for generating the gas or by boiling in the room. In either case all doors, windows and cracks in the room must be securely closed. Not less than one pound of formaldehyde, must be used for each 100 square feet of floor space. There is a tendency among manufacturers of formaldehyde generators to recommend a quantity of gas that is entirely too small to do the work. If the boiling process is used, the heat supplied must be sufficient to cause rapid boiling of the formaldehyde. If the formaldehyde is not boiling the gas is generated so slowly that it will have no effect on the disease germs.

2. Further disinfection of the contents of the house: After aerial disinfection the contents of the house should be divided into two groups.

(a) Articles that can be disinfected by means of steam or boiling water.

(b) Articles that must be burned.

Washable clothing from the patient or bed should be placed and kept in water at the boiling point for one hour.

Furniture that will stand washing, such as plain chairs, tables, bedsteads, etc., should be washed with a one to one-thousand parts solution of corrosive sublimate in water.

Upholstered furniture, carpets, curtains, mattresses, pillows, feather beds, quilts, etc., and also all articles that would be spoiled by such methods of disinfection as have already been described, should be burned.

3. Further disinfection of the room: After the removal and disinfection of the contents of a room the room itself should receive careful attention. If the walls are papered the paper should be soaked off with a one to one-thousand parts solution of corrosive sublimate in water, and the walls, windows, woodwork, floors, and, in fact, everything about the room, should be washed with a similar solution. It is a good plan to repaint all woodwork.

After everything has been thoroughly disinfected, still further precaution should be taken by allowing the most complete ventilation possible of the room. Articles of clothing or furniture should be placed in the open air and exposed to the sunlight, if possible, for several days.

THOS. D. TUTTLE, M. D.,
Secretary State Board of Health.

Adopted Nov. 3d, 1903.

QUARANTINE NOTICE.

This notice must be given to the householder by the local or county health officer when he places a house under quarantine for Diphtheria.

Your property is now under quarantine for Diphtheria, and you are hereby notified to observe the cautions mentioned below.

Quarantine in Diphtheria must be absolute. No one can enter or leave the premises until the quarantine is raised and the sign removed by the local or county health officer. Quarantine cannot be raised by any one except an authorized health officer, and by him only after disinfection as described below. The discontinuance of visits by your physician does not release you from quarantine. Any one leaving the premises while un-

der quarantine is guilty of breaking quarantine and is subject to a heavy fine or imprisonment. The minimum time of quarantine in Diphtheria is four weeks and no one can be released from quarantine for diphtheria under this time except under the following conditions:

The attending physician may inoculate a sterile culture tube at repeated intervals and send this tube to the State Bacteriologist at Helena, who will immediately test it for the specific germ of diphtheria, and whenever the culture is found to be free from the germs of diphtheria the patient may be released from quarantine. These tests must be made by the State Bacteriologist and the failure to find the germs of diphtheria by a local physician or any one else except the State Bacteriologist shall not be considered sufficient grounds for raising quarantine. The physician may send these tubes to the State Bacteriologist at as frequent intervals as he may deem necessary, but we especially request that he shall not send them until he is reasonably satisfied that the throat is free from the specific germs.

Disinfection.

Disinfection of a house after the removal or recovery of a Diphtheria patient should be as follows:

1. Aerial Disinfection. For this Formaldehyde is probably the best disinfectant known at present. This may be used either with an apparatus for generating the gas or by boiling in the room. In either case all doors, windows and cracks in the room must be securely closed. Not less than one pound of formaldehyde, must be used for each 100 square feet of floor space. There is a tendency among manufacturers of formaldehyde generators to recommend a quantity of gas that is entirely too small to do the work. If the boiling process is used, the heat supplied must be sufficient to cause rapid boiling of the formaldehyde. If the formaldehyde is not boiling the gas is generated so slowly that it will have no effect on the disease germs.

2. Further disinfection of the contents of the house: After aerial disinfection the contents of the house should be divided into two groups.

- (a) Articles that can be disinfected by means of steam or boiling water.

- (b) Articles that must be burned.

Washable clothing from the patient or bed should be placed and kept in water at the boiling point for one hour.

Furniture that will stand washing, such as plain chairs, tables, bedsteads, etc., should be washed with a one to one-thousand parts solution of corrosive sublimate in water.

Upholstered furniture, carpets, curtains, mattresses, pillows, feather beds, quilts, etc., and also all articles that would be spoiled by such methods of disinfection as have already been described, should be burned.

3. Further disinfection of the room: After the removal and disinfection of the contents of a room the room itself should receive careful attention. If the walls are papered the paper should be soaked off with a one to one-thousand parts solution of corrosive sublimate in water, and the walls, windows, woodwork, floors, and, in fact, everything about the room, should be washed with a similar solution. It is a good plan to repaint all woodwork.

After everything has been thoroughly disinfected, still further precaution should be taken by allowing the most complete ventilation possible of the room. Articles of clothing or furniture should be placed in the open air and exposed to the sunlight, if possible, for several days.

THOS. D. TUTTLE, M. D.,
Secretary State Board of Health.

Adopted Nov. 3d, 1903.

QUARANTINE NOTICE.

This notice must be given to the householder by the local or county health officer whenever he places a house under quarantine for Smallpox.

Your house is now under quarantine for Smallpox, and you are hereby notified to observe the cautions mentioned below.

Quarantine for Smallpox must be absolute. No one shall be allowed to enter or leave the premises until such time as the quarantine shall be discontinued and the sign removed by the local or county health officer. Your attention is especially called to the fact that the physician in attendance can not release you from quarantine, only the health officer can do this and then only after thorough disinfection as described below. Any one

leaving the premises while under quarantine is guilty of breaking quarantine and subject to a heavy fine or imprisonment.

The time of quarantine for Smallpox must not be less than four weeks from the time of the first appearance of the disease. Quarantine may be raised thereafter on condition that the process of desquamation is complete, as determined by an examination by the local or county health officer. All persons exposed to Smallpox shall be immediately vaccinated or kept under quarantine or observation for at least fourteen days from the time of last exposure. All persons in a house at the time Smallpox appeared or at any time after it appeared are exposed. Persons who have had Smallpox or who have been **successfully** vaccinated within the last twelve months may be released without vaccination. Any person who has been **successfully** vaccinated within the last twelve months or who has had Smallpox and who desires to leave the house in which Smallpox exists may do so after a thorough disinfection under the direct supervision of a local or county health officer.

Disinfection.

Disinfection of a house after the removal or recovery of a Smallpox patient should be as follows:

1. Aerial Disinfection. For this Formaldehyde is probably the best disinfectant known at present. This may be used either with an apparatus for generating the gas or by boiling in the room. In either case all doors, windows and cracks in the room must be securely closed. Not less than one pound of formaldehyde, must be used for each 100 square feet of floor space. There is a tendency among manufacturers of formaldehyde generators to recommend a quantity of gas that is entirely too small to do the work. If the boiling process is used, the heat supplied must be sufficient to cause rapid boiling of the formaldehyde. If the formaldehyde is not boiling the gas is generated so slowly that it will have no effect on the disease germs.

2. Further disinfection of the contents of the house: After aerial disinfection the contents of the house should be divided into two groups.

- (a) Articles that can be disinfected by means of steam or boiling water.

- (b) Articles that must be burned.

Washable clothing from the patient or bed should be placed and kept in water at the boiling point for one hour.

Furniture that will stand washing, such as plain chairs, tables, bedsteads, etc., should be washed with a one to one-thousand parts solution of corrosive sublimate in water.

Upholstered furniture, carpets, curtains, mattresses, pillows, feather beds, quilts, etc., and also all articles that would be spoiled by such methods of disinfection as have already been described, should be burned.

3. Further disinfection of the room: After the removal and disinfection of the contents of a room the room itself should receive careful attention. If the walls are papered the paper should be soaked off with a one to one-thousand parts solution of corrosive sublimate in water, and the walls, windows, woodwork, floors, and, in fact, everything about the room, should be washed with a similar solution. It is a good plan to repaint all woodwork.

After everything has been thoroughly disinfected, still further precaution should be taken by allowing the most complete ventilation possible of the room. Articles of clothing or furniture should be placed in the open air and exposed to the sunlight, if possible, for several days.

THOS. D. TUTTLE, M. D.,
Secretary State Board of Health.

Adopted Nov. 3d, 1903.

QUARANTINE NOTICE.

This notice must be given to the householder by the local or county health officer when he places the house under quarantine for Measles.

Your property is now under quarantine for Measles and you are required to observe the following precautions:

Quarantine for measles is not absolute, but the patient must be placed in a room to his or herself. The one attending the patient must refrain from mixing with other members of the family. All children residing in the house must be kept strictly at home and no other children allowed to visit the house. Adults residing in the house and who are engaged in a business or profession may go to their place of business provided they do not go into the room occupied by the patient. They must refrain from attending church or other public meetings. The

minimum time of quarantine for measles is three weeks, at the end of which time quarantine may be raised by the local or county health officer, provided desquamation is completed. Disinfection after measles shall consist in vaporizing not less than one pint of formaldehyde for each 100 square feet of floor space in the room occupied by the patient. During and after the vaporization of the formaldehyde the room must be kept tightly closed for at least twenty-four hours.

THOS. D. TUTTLE, M. D.,
Sec'y State Board of Health.

Adopted Nov. 3d, 1903.

This notice must be given to the householder by the local or county health officer whenever he is notified that a case of Typhoid Fever exists in his district and to such other persons as he may deem advisable.

Typhoid Fever Notice.

Typhoid Fever is now prevalent in your neighborhood and you are urged to take the following precautions to prevent the spread of the disease and to protect yourself from it.

No water from any source should be used for drinking or domestic purposes until it has been boiled for at least thirty minutes. No milk from cows drinking water from streams passing through premises where there is a case of typhoid fever should be used for drinking or making butter. Your premises should be cleaned and put in as perfect sanitary condition as possible. Especially should all horse manure be removed. Horse manure is the natural hatching place for flies and flies are common bearers of typhoid fever germs.

In houses where there is typhoid fever the following precautions must be observed: All dishes, spoons, knives, forks, etc., used by the patient must be reserved for his or her use alone and must not be used by any other person until they have been boiled for at least thirty minutes after having been used by the patient. All napkins, towels, rags, clothing, etc., used by the patient must be boiled for at least one hour before being used by any other person. All feces, urine or other excreta from the body of the patient shall be thoroughly mixed with milk of lime (one part of slaked lime to eight parts of water) or a 1 to 500 solution of bichloride of mercury and let stand for at least one hour before it is thrown into a privy vault, sewer, or on the

ground. No feces, urine or other excreta from a patient suffering from typhoid fever shall be thrown into any stream, irrigating ditch or other water source either before or after disinfection. Any one throwing such excreta into any stream or other water source is guilty of polluting the water and subject to a heavy fine.

THOS. D. TUTTLE, M. D.,

Adopted Nov. 3d, 1903.

Sec. State Board of Health.

Typhoid Fever at Judith.

On August 25th, T. C. Power submitted to me a letter from Mr. Norris, of Judith, stating that two men had been taken from there to Fort Benton with typhoid fever, one of whom had died, and stating that others at the ranch were sick. He feared an epidemic of typhoid fever and requested that an investigation as to the cause of the disease be made. I immediately wrote to the health officer of Fergus county and directed him to investigate the matter and if possible locate the source of the disease. The only reply I received from him in the matter was, "I can learn nothing of cases of typhoid fever at Norris'," written across his report for the week ending September 5th. On September 16th I received a telephone message from Dr. Gordon, of Great Falls, to the effect that things were in bad shape at Judith. The same day I received a telegram from the health officer of Cascade county requesting me to investigate matters at Judith. That night I left for Lewistown, where I found that the investigation conducted by the health officer of Fergus county had consisted in asking a neighbor, living some fifteen miles from Judith, what he knew about the sickness at Norris's ranch, and being informed by his neighbor that he knew nothing of any sickness there, he let the matter drop. I talked with the chairman of the county board of health and found him apparently ready to do anything within his power to abate sickness within his county, but appearances are sometimes misleading. From Lewistown I drove to Judith, a distance of about seventy miles. Mrs. Norris, the wife of the manager and part owner of the "P. N." ranch, died the night before I arrived, of typhoid fever.

Judith is a postoffice and the headquarters of the "P. N." ranch. Mr. Norris, the manager, was naturally much disturbed at the loss of his wife, so that I saw but little of him, he leaving with her remains the morning after my arrival, and before I had

been able to make any investigation into the cause of the disease.

After examining the sanitary conditions around the quarters I was thoroughly satisfied as to where the disease originated, but having been informed by Mr. Norris that a school teacher living some ten or twelve miles up the Judith river, had been sick for some time, I made a trip to her home to determine whether that was a possible source of the infection at Judith. I found that the young lady in question had been out of school just three days, and during that time she was not confined to her bed, having had simply a bad cold, nor had she been sick at any other time than during the three days stated.

The source of the disease was so evident to my mind and the fact that there had been no cases of typhoid fever on either river above or below Judith that I did not deem it necessary to go to the expense of having the waters of the Missouri and Judith rivers examined, and the fact that not another case of typhoid fever appeared after the premises were put in a sanitary condition is good evidence that the source of the disease was as stated hereafter..

One case of typhoid fever developed the day I left Judith, in addition to those to be mentioned below, but none after the premises were cleaned and disinfected

On reaching Helena I directed the following letter to T. C. Power, principal owner of the "P N." ranch, which letter will acquaint you with the conditions found and my recommendations in the matter:

Helena, Mont., Oct. 22, 1903.

Hon. T. C. Power, Helena, Mont.

Dear Sir: I have just returned from an investigation of the typhoid fever epidemic at Judith and desire to call your attention to the following conditions, and would insist that certain steps be taken to protect the people working on the "P. N." ranch, as well as those in the neighborhood of said ranch.

There have been twelve cases of typhoid fever, all originating at the Judith P. O., the headquarters for the men working on the ranch mentioned above. Of these, two have died, three are in the hospital at Fort Benton, one in the hospital at Kendall, three are in the "bunk house" at the ranch, two in Norris's house at the ranch and the other two have recovered so as to be able to be about. Two of the men in the "bunk house" are

very ill, as are two of those at the Fort Benton hospital. The two Norris children are far from well. Unless steps are immediately taken to treat those who are sick at the ranch and protect those who are not yet sick I believe there will be at least two more deaths there and probably several new cases.

Your manager, Mr. Norris, left for Chicago with the remains of his wife on the 20th inst., so that, while there is a newly appointed foreman on the spot, there is no one who has sufficient authority to take the necessary steps to provide medical treatment for those sick or direct the steps necessary to abate the disease.

All these cases are confined strictly to those working or living at the headquarters of the "P. N." ranch. There has been no other sickness in the community with the exception of a school teacher living about eight miles above the ranch on the Judith river, who was sick with a bad cold for just three days. There is no question in my mind as to the origin of this epidemic. For several months prior to the first case, the "boarding house" was run in a most filthy manner. The swill was thrown on the ground just outside of the kitchen door, and allowed to remain there. The house was about as filthy inside as it was outside. This filth drew an enormous number of flies which swarmed over the putrid matter and then over the food offered the men. This condition persisted for several months, without any attention being paid to it by Mr. Norris until the foreman insisted that it be looked into. At that time the boarding house contractor was discharged and a new contract let. These new contractors have cleaned things up as much as possible, but it is utterly impossible to free that house of disease germs except by a process of fire. The barn is a good building, but needs a thorough cleaning out and to be kept clean. The men use the loft of the barn as sleeping quarters to a large extent. The "bunk house" is large enough for four men only and is now being used for the sick employes. It is not a suitable place for the sick, being poorly ventilated. After this epidemic it will not be a suitable place for men to sleep in as it cannot be freed from disease germs except by burning.

These being the conditions present I would strongly urge you, as the principal owner of the property, to direct that the following steps be taken: First, secure a physician to go there and attend the sick for such a time as the physician may deem it

necessary to stay, or until such a time as all those sick with typhoid fever, or such as may be taken sick, shall be thoroughly out of danger. Second, give this physician authority to direct the cleaning of the premises and putting them in a sanitary condition. Third, direct that all weeds, etc., growing between the house occupied by Mr. Norris and a point at which a tent in which some of the men sleep is located, be mowed down and the entire space thoroughly raked and that the weeds, rubbish and refuse thus secured be burned to ashes. Direct that the barn and surrounding space be thoroughly cleaned and kept clean. Fourth, provide a tent of large size for sleeping quarters for the men and another to be used as a boarding house, and direct that the house now being used as a boarding house and the cabin adjacent to it be burned to the ground. As soon as the men now sick, or any others that may be taken sick, have recovered sufficiently to be about, have the house now occupied by them burned to the ground. As soon as possible have properly ventilated houses of sufficient size to accommodate the number of men commonly employed constructed, as sleeping quarters and boarding houses.

If these directions are followed out the fever will stop, but otherwise other cases will develop and several deaths are apt to follow. If a physician is not sent there to attend the men two of those now sick will probably die. Yours truly,

(Signed)

THOS. D. TUTTLE,
Sec. State Board of Health.

On receipt of this letter Mr. Power immediately secured a physician to go to Judith and remain there until such time as those sick should be out of danger, and directed him to supervise the work of putting the place in a sanitary condition.

Believing that had the county health officer made proper investigation when I first wrote him regarding the conditions at Judith the life of Mrs. Norris might have been saved and several cases of typhoid prevented, I directed the following letter to the County Commissioners of Fergus county, and now respectfully ask your endorsement of my actions in this matter.

Helena, Mont., Oct. 25, 1903.

To the County Commissioners of Fergus County, Lewistown, Mont.

Gentlemen: On the 25th day of August, 1903, I wrote to your

county health officer, calling his attention to an epidemic of Typhoid Fever in your county, at and near Judith Postoffice, and directed him to investigate the matter as provided in Section 17 of the laws pertaining to public health. On September 16th I received a report from the health officer of Cascade County to the effect that there was a severe epidemic of typhoid fever at Judith, in your county. I called on your health officer while on my way to investigate the matter and found that his investigation had consisted in asking some neighbor what he knew about the sickness at Judith.

On my arrival at Judith I found a deplorable condition. There had been twelve cases of typhoid fever there since the first of August. Of these two had died, four had been sent to the hospital at Fort Benton, one to the hospital at Kendall, five were at Judith and one had recovered. Two of those at Judith and two at Fort Benton were very sick men to say the least. There is a very great probability that two of the men now sick will die and that several of the men not yet taken down will soon show symptoms of the disease. Since my return from Judith the physician in charge has reported a new case.

There is no doubt in my mind but that if your county health officer had properly investigated this matter the life of Mrs. Norris might have been saved and the men now in a critical condition might have been spared this danger, by receiving proper medical attention at an early stage of the disease. Other cases might have been prevented by the institution of proper measures to eradicate the source of the disease.

Such negligence on the part of any local health officer tends to frustrate the efforts of all other health officers and of the State Board of Health to put the state in a sanitary condition. We trust you will investigate this matter and if your present health officer is not willing to do his work promptly and thoroughly, a man who is willing to do so should be appointed.

Yours truly,

(Signed)

THOS. D. TUTTLE,
Secretary, State Board of Health.

I submit herewith a petition from twenty-one taxpayers of Malta, the report of the county health officer and other correspondence in the matter of a sewer emptying into the river at a point above town.

There was an epidemic of typhoid fever at Forsyth during the months of August and September, of which I received reports of comparatively few cases. Dr. Wilson reported some of his cases, but several were sent to other points for treatment and were never reported. These cases having originated in Rosebud county, should have been reported from there. I asked the county health officer to discover what cases had occurred in the county and had not been reported to him. He secured data regarding three cases that had been sent to Brainard Hospital. These cases were not reported in our state. Shall action be brought against the physician thus failing to report?

In the matter of tuberculosis. I think one case was reported before death, none others. Several were reported after they had died, while many have died from tuberculosis that were never reported. Tuberculosis is a communicable disease; shall we bring suit against those who fail to report this disease,

In the matter of vital statistics. Comparatively few physicians have complied with the law in the matter of reporting births and deaths. In our Bulletin, a copy of which was mailed to every physician in the state, we published the opinion of the Attorney General regarding this law and stated that those failing to comply with the requirements would be prosecuted; shall suit be brought?

I would respectfully call your attention to the need of a filing cabinet for the secretary's office. Rubber bands will do very well up to a certain point, but beyond this they will not answer and at all times the files present an unbusiness-like appearance when kept in this manner. Respectfully submitted,

(Signed)

THOS. D. TUTTLE,

In the matter of petition from Malta regarding a sewer entering the river at that point. The Secretary was instructed to forward said petition to the board of health of Valley County with the following suggestions: It is the opinion of this board that the matter of putting sewage into the Milk River should be acted upon by the Valley County Board of Health. That it is the opinion of this board that to permit the "Hotel Company of Malta" to put their sewage into the Milk River would pollute the waters of said river and result in sickness among those who use the waters of said river, not only at Malta, but on the ranches throughout the course of said river. That this board urges the Board of Health of Valley County to prohibit the "Hotel Com-

pany of Malta," or any one else, from putting sewage or any refuse matter that would result in pollution of the water, into Milk River, and that said Hotel Company be required to provide sanitary means for the disposal of its sewage.

The secretary was directed to make copies of that portion of his report regarding the appointment and pay of county health officers and forward a copy to the County Commissioners of each county in the state.

The following resolutions were introduced and unanimously adopted:

Resolved, First, that this board does hereby endorse the action of its secretary in his recommendations to the County Commissioners of Fergus county in the matter of the gross neglect of the health officer of that county touching the typhoid fever epidemic reported to him in the month of August, 1903, as existing at Judith, Mont.

Second, that this board of health most heartily condemns the inefficiency or indifference of said health officer of Fergus county as indicated in his conduct in the matter above referred to, and we recommend that in all such cases, when it shall appear, after thorough investigation, that a health officer has not immediately taken the necessary steps in the matter of an authenticated report of unsanitary conditions within his jurisdiction, and especially when such report indicates the existence of contagious or infectious diseases, then shall the Board of County Commissioners depose such official and place in his stead one who will carry out the intents and purposes of the law.

Third, that the secretary be and is hereby instructed to send a copy of these resolutions to the County Commissioners of Fergus county and to publish this action in our Health Bulletin and elsewhere at his discretion, to the end that such reprehensible conduct on the part of a health officer may receive that condemnation from the public which it so justly deserves.

The secretary was instructed to write to the health officer of Rosebud county, directing him to bring suit against any who had failed to report any contagious or infectious disease within his county.

Rules for householders while under quarantine were corrected and ordered published and distributed to the various health officers.

The secretary was directed to file complaints against any or

all of those who have failed to report births or deaths to the county clerk, as soon as he has been assured by the proper authority that the law will stand.

A petition from forty-two taxpayers of Great Falls, regarding the testing of cattle for tuberculosis whenever milk is sold from such cattle, whether they be part of a herd belonging to a dairy or private cows, was presented.

This petition was referred to the Meat and Milk Commission with the recommendation that it be granted.

The secretary was instructed to try to arrange for a meeting of local and county health officers to be held in the city of Helena the first week in February.

The secretary was instructed to purchase a filing cabinet for his office, the cost of which was not to exceed sixty dollars (\$60).

There being no further business the meeting adjourned.

THOS. D. TUTTLE, M. D.,

WM. TREACY, M. D., President.

Secretary.

Health Office, Helena, Mont., Feb. 2d, 1904.

Pursuant to call, the Montana State Board of Health met in regular quarterly session in the Health Office at the Capitol Building on Tuesday, February 2d, 1904, at 3:30 p. m. President Treacy in the chair.

There were present Governor Jos. K. Toole, Drs. Southmayd, Belcher, Wm. Treacy, president; Thos. D. Tuttle, secretary, and Mr. J. W. Wade.

Minutes of previous meeting were read and approved.

The following report of the secretary for the quarter ending January 31st was read and approved:

In the matter of petition from taxpayers of Malta regarding disposal of sewage by the Hotel Company of Malta, petition was referred to the County Board of Health of Valley county, with recommendation that they prohibit the Hotel Company of Malta from putting sewage into the Milk river. Report of secretary, Valley County Board of Health, states that the Hotel Company of Malta were permitted to put their sewage into the Milk river.

As directed by you, I made copies of that portion of my last report regarding appointments and pay of county health officers and mailed a copy to the County Commissioners of each county; at the same time I wrote to the County Commissioners calling their attention to the failure on the part of physicians to com-

ply with the law regarding reporting births and deaths and asked them to direct their county attorney to take the matter up and thus save the state the expense of sending its representative to the various counties to file complaints in the matter. Only one county, Carbon, responded to this request and the result was a complete report of births and deaths in that county for the last quarter.

Suit was instituted against one physician, R. M. Francis, of Bozeman, for failure to report births and deaths as required by the laws of the state. This suit is still in the hands of the county attorney of Gallatin county, who, for some reason unknown to me, has not pushed the matter.

The latter part of December I wrote a letter to each physician in the state again calling their attention to this matter and to the fact that one suit had been instituted and that others would follow unless these reports were made.

Reports have been received from the county clerks of all counties, except three. In these counties there are 248 physicians, 117 of whom reported deaths and 175 reported births. I find that a very large percentage of those who attended births or deaths reported in these counties, for the quarter just passed. However, there are a few, notably in the county of Cascade, who have taken an obstinate stand in the matter and refuse to make these reports.

In the matter of arranging for a meeting of health officers in Montana during the first week in February I found that many changes would be made in the county health officers about the first of the year, and therefore we would not be able to have a full meeting at this time. I have for this reason taken the liberty of making preliminary arrangements for such meeting during the first week in May of this year. Letters from all county and local health officers indicate a general favorable feeling toward such a meeting. Some few county health officers object on account of the expense attached to attending such a meeting and suggest that the county be requested to defer the expense. This is right in many respects, as the county will gain the benefits of anything their health officers may learn at such meeting. Efforts will be made to obtain favorable rates over the railroads for those attending this meeting.

As directed by you I purchased a filing cabinet at a cost not

to exceed sixty dollars. The cost of the cabinet purchased was fifty dollars.

As shown by tables in Bulletin there were more infectious diseases reported during the last quarter than during the previous quarter, but far less than during the last quarter of last school year. This is a good showing and especially so as the health officers inform me the cases are more thoroughly reported than they have been heretofore.

The large majority of health officers are doing good work and this work is telling on the number of infectious diseases in the state. There are some physicians in the state who will have to be shown the necessity of reporting these cases before the diseases can be entirely controlled. We believe that failure on the part of the county health officer of Beaverhead county to perform his duty resulted in several deaths from scarlet fever. He was notified of certain cases of scarlet fever at Hecla and took no steps to prevent the spread of the disease and thirteen cases developed before quarantine was established and of these five died. This is an enormous mortality. There is now a new health officer in Beaverhead county and we hope to see better work in the line of preventive medicine in that county.

Your secretary made some investigation into the pay received by the various county health officers in the state. The result of these investigations are published in our Bulletin and show very conclusively that a great many of them receive so little pay that we can not expect very energetic work from them. However, some of those receiving very little pay are doing excellent work. There are some men who will stand by a contract regardless of the pay received.

During the early part of January an epidemic of smallpox appeared at Forsyth. Your secretary received several letters from the health officer of Custer county complaining of the lax quarantine enforcement and letters from Forsyth indicated that there was no health officer in Rosebud county. I presented these conditions to your president and with his advise and consent made a trip to Forsyth to investigate the matter. I found that the County Commissioners of Rosebud county have never met as a board of health, that there has never been a legally appointed health officer in the county and at that time there was not even a county physician, the term of the former county physician having expired the first of December, 1903. I found that

the chairman of the Board of County Commissioners was out of the state and, while one of the commissioners lived at Forsyth, the third lived about 140 miles from the county seat and it would require at least four days to reach him. The local county commissioner had asked Dr. Reber to act as county health officer, which he was doing. Dr. Reber could not take the active steps indicated under the conditions, when practically everybody in town had been exposed to smallpox. The doctor was not a legally appointed health officer and the local member of the Board of County Commissioners being in the minority, he could not feel assured that the other commissioners would support his actions in the matter. The health officer of Custer county also visited Forsyth and, finding that there was not a board of health, county health officer or county physician in Rosebud county, justly advised his board of health to quarantine against Rosebud county, which they did. There is no complaint to make regarding the work performed by Dr. Reber, he having done absolutely the best possible, under the circumstances, and succeeded in controlling the epidemic. So far as I can learn Rosebud county has no organized board of health today, no county physician and no health officer. There is an acting health officer, but under such conditions he is liable to get into trouble as did the health officer of Dawson county, who is now being prosecuted for moneys paid him for performing the work of the health officer because there was no official record of his having been appointed by the county commissioners sitting as a board of health. It is the opinion of your secretary that a great many health officers are appointed in no other manner than was the health officer of Dawson county, and unless these appointments are properly made, any or all of them are liable to the same trouble, resulting from jealousy on the part of competitors for the office.

Smallpox appeared in the town of Whitefish on January 27th and was promptly dealt with by the county health officer. His report, herewith submitted, states the conditions existing there as opposed to the herewith submitted telegram from Whitefish.

Flathead county had a great deal of sickness of a communicable character last winter and the local board of health is making a firm and effectual effort to prevent a repetition of the same conditions this winter.

As stated, a large majority of local and county health officers

are doing good work, a few, however, are doing nothing. No report has ever been received from the county health officer of Granite county. He has been frequently written to regarding these reports, but has paid no attention to my requests for them. In November he was notified of his failure to make an annual report, as required, in the month of October, and his attention was called to the fact that such failure constituted a misdemeanor as indicated by the opinion of the Attorney General, given at my request regarding such failures. He did not reply to this notice. A few days ago I was notified of the appointment of another county health officer, but unless he is given to understand that this board will not permit such negligence I look for nothing better. The county health officer of Fergus county, whose actions you condemned at your last meeting, is still in office and has made no reports for the months of November, December and January. No reports are received from the county health officer of Deer Lodge county. There is said to be a local health officer at Anaconda, but letters addressed to that officer receive no reply. I addressed a letter to Dr. Sleigh, who is said to hold this office, asking him for a report, but received no reply of any kind from him. No report has been received from the county health officer of Lewis and Clarke county. Meagher county has been without a health officer since the first of December, 1903. The county clerks of Granite, Silver Bow and Ravalli counties failed to respond to my requests for copies of records of births and deaths. Two requests were sent to Ravalli county and four to Granite county. I believe Ravalli county is waiting for complete returns, as report blanks were not gotten out until the latter part of January. Granite county has paid no attention to my requests. These are matters with which your secretary can not contend and he requests that you indicate what action shall be taken in the matter.

Your secretary would make the following suggestions: First, that a committee be appointed to make final arrangements for a meeting of health officers in Montana, to be held at Helena May 2d and 3d. Second, that a committee be appointed to consider what, if any, changes are needed in our laws pertaining to public health, in order that our work may be in conformity with that of other states. Third, that the work of the health officers of Custer and Flathead counties be commended. Fourth, that we purchase a copy of the proceedings of the meeting of

American Health Officers, held at Washington, D. C., last October. Fifth, that our Senators and Congressman at Washington be requested to urge the U. S. Marine Hospital service to continue the investigation into the cause of "Spotted Fever" in the Bitter Root valley at an early date this spring.

(Signed) Respectfully submitted,
THOS. D. TUTTLE,
Secretary, State Board of Health.

The following resolutions were introduced and unanimously adopted:

Whereas, The counties of Rosebud and Meagher have failed and neglected to appoint a health officer as required by law, and the county health officers of the counties of Granite, Fergus, Lewis and Clarke and Deer Lodge have failed and neglected to make regular reports regarding contagious and infectious diseases as required by law and the rules of the State Board of health; therefore, be it

Resolved, That the Hon. James Donovan, Attorney General, be and he is hereby requested to take this matter up in the several delinquent counties and through the respective county attorneys of said counties, institute and prosecute such action against such delinquents as may be necessary to secure a compliance with the law and the rules of this board.

Motion carried that the chairman appoint a committee to complete arrangements for a meeting of health officers in Montana, to be held in the City of Helena, May 2d and 3d, 1904.

Drs. Southmayd and Tuttle and Mr. J. W. Wade were appointed as this committee. Motion carried that a committee of three be appointed to consider what, if any, changes are needed in our laws pertaining to public health, in order to make the workings of our board conform to those of other states, and that the chairman constitute a member of this committee.

Drs. Treacy, Belcher and Tuttle were appointed as this committee.

Motion carried that this board does especially appreciate and commend the efficient work of the health officers of Custer and Flathead counties in their efforts to prevent the spread of communicable diseases in their respective counties.

The secretary was instructed to subscribe for the proceedings

of the last meeting of the American Health Officers, held at Washington, D. C., in October of last year.

The secretary was instructed to write to Senator Gibson and Congressman Dixon, requesting that they use their influence towards the continuance of the investigation into the cause of "Spotted Fever" in the state, by the U. S. Marine Hospital Service.

Evidence being presented that certain physicians in Cascade county, had failed and neglected to report births and deaths to the county clerk, as required by law, the secretary was instructed to file complaints against such delinquents in Cascade or any other county in the state.

There being no further business before the board the meeting adjourned.

(Signed)

WM. TREACY, M. D.,

THOS. D. TUTTLE, M. D.,

President.

Secretary.

Health Office, Helena, Mont., May 3d, 1904.

Pursuant to regular call, the Montana State Board of Health met in regular quarterly session in the Health Office at the Capitol on Tuesday, May 3d, 1904, at 1:30 p. m.

There were present Drs. Southmayd, Belcher and Tuttle and Mr. J. W. Wade. President Treacy being absent, Dr. Belcher was made temporary chairman.

The minutes of the previous meeting were read and approved.

The following report of the secretary for the quarter ending April 30th was read and approved.

According to your instructions your secretary took up the matter of continuing the investigation into the cause of "Spotted Fever" by the U. S. Public Health and Marine Hospital Service with Senator Gibson and Congressman Dixon. On February 15th the following telegram was received:

Washington, D. C., Feb. 15th, 1904.

Dr. T. D. Tuttle, Secretary, State Board Health, Helena, Mont.:

Surgeon General will send Dr. Anderson and also another expert to further investigate Spotted Fever about the middle of March.

(Signed)

JOS. M. DIXON.

Being unable to learn of the presence of these or any other experts in the field in Montana up to the middle of April, I wrote again to Mr. Dixon, asking him to try to hurry the matter along. I have heard nothing from this last request, nor have I been able to learn that either of these experts have appeared in our state up to the present time.

In accordance with your instructions, complaints were filed against those who failed to file reports of births or deaths at the end of last quarter. While these complaints were duly filed with a justice of the peace, I have learned nothing of their having been prosecuted by the county attorney. It is useless to file complaints and then have them die in the pigeon holes of the county attorney's desk.

I submit herewith the resignation of Emil Starz as State Bacteriologist. While this document is dated January 20th, 1904, it was not delivered to me until about the 10th of February, and then by a messenger from Mr. Starz. I consulted with the president of the board and with the Governor of the state and with their advice and consent undertook to find one capable of filling the position thus vacated. This I was able to do through the assistance of Dr. Sullivan, of Butte, in the person of Dr. C. H. Horst. Dr. Horst was asked and consented to act as State Bacteriologist until the board could take formal action in the matter.

Having notified the professor of chemistry at the University at Missoula of your action, to the effect that this board did not believe a single examination of the domestic waters of the state would be of any benefit, but that repeated examinations would be necessary to determine the standard of purity, Prof. Harkins immediately replied that he was ready and willing to examine at repeated intervals samples of any water that might be sent to him. In this matter I again consulted the president of this board, and with his advice accepted Prof. Harkins' offer, which was to repeatedly examine any waters of the state that might be forwarded to him, the only expense to be attached thereto being expressage, to be paid by this board. I then wrote to all health officers asking them to forward samples of the domestic waters from their localities and submitting directions as to the methods to be followed in collecting these samples, but very few, up to the present time, have taken advantage of this exceptional opportunity of having the standard of purity of the wa-

ters of their locality established. When we consider that the regular charge for making these examinations is \$25.00 for each sample we are able to appreciate the extent of the offer made by Prof. Harkins and the absurdity of the local health officers in failing to take advantage of it.

A copy of the resolutions adopted at your last meeting were submitted to the Attorney General and he replied that the matter had been taken up by the various county attorneys. The result is that Rosebud and Meagher counties have appointed health officers. The health officer of Granite county (a newly appointed one), is reporting. Others are doing better, though no report is received from Deer Lodge county.

In the matter of births and deaths. We are now receiving fairly complete reports, probably as complete as we can hope for until our law is made to conform to that suggested by congress, or until the county attorneys are ready to prosecute to the end every one who fails to comply strictly with the law in this respect. However, we can never hope for anything like a complete return of births and deaths until such time as we have an immediate report law, such a law as is contemplated in the resolutions adopted by Congress last February.

Respectfully submitted,

THOS. D. TUTTLE.

The committee on meeting of health officers in Montana reported a very successful meeting. All bills for entertainment not being received, an itemized account of expenses for entertainment could not be rendered, but the secretary estimated that it would be about \$70.00, and it was agreed to assess each member of the board (not including ex-officio members), \$12.50 to meet the expense of this entertainment.

The following report was submitted by the committee appointed to consider what, if any, changes were needed in our laws pertaining to public health.

To the State Board of Health of Montana.

Gentlemen: Your committee appointed to consider what, if any, changes are needed in our laws pertaining to public health, beg leave to submit the following report:

We have carefully studied our law as it stands, have presented to ourselves numerous questions regarding what steps to take under certain conditions, and have carefully compared it

with the laws of other states, and have come to the conclusion that our law is defective in the following points:

First. The Title provides for the "enforcement of the rules and regulations of said board," but the law fails to make any provision for such enforcement.

Second. In Section 3 the clause "and adopt all needful rules and regulations subject to the provisions of this act" is so placed as to be subject to the construction that such rules and regulations shall pertain to the government of this board as a board, whereas it should be made very clear that this board may make all needful rules and regulations regarding the methods of dealing with communicable diseases and regulating the actions of local and county health officers.

Third. The secretary of this board should be required to exercise supervision over the work of all local and county health officers, and to devote all his time to the work of this board.

Fourth. Section 9 provides that a physician shall be a member of each county board of health, but does not provide that he shall be the health officer of the county. We believe this point should be made clear in the law and that a minimum salary should be stipulated for each health officer. The terms "local and county health officer" are frequently used in the law, but such officer is not defined in the law.

Fifth. The term "communicable" should be substituted for contagious or infectious and a list of such diseases as shall be so considered included in the law, giving this board the power to add to or take from that list as science shall prove other diseases to be communicable, or that those now considered communicable are not.

Sixth. Section 12 should specify what information a report regarding a communicable disease shall contain.

Seventh. Section 16 fails to clearly define the duties of a local or county health officer, and no penalty is provided for his failure to perform such duties as are required of him.

Eighth. Section 18 mentions "the health authority of any city or town," but we are unable to determine what constitutes a "health authority" under the law. We believe that the law should require each incorporated city or town in the state to appoint a health officer, that his duties should be clearly defined, that a penalty should be fixed for a failure to perform such du-

ties as are required of him, and that a minimum salary for such health officer should be fixed.

Ninth. Section 12 and 31 are essentially the same, section 31 containing all there is essential in section 12.

Tenth. Section 32 requires that records be kept but does not provide for record books nor that such records shall be turned over to the successor in office.

Eleventh. Section 19 provides for the removal from a "ship or vessel" of any one suffering from a dangerous contagious or infectious disease, but not one word is said regarding the disinfection of a railway coach or the removal therefrom of persons suffering from such diseases.

Twelfth. The law should provide that the means of conveyance and the methods of preventing the spread of communicable diseases be taught in the public schools of our state and that the secretary of this board be required to furnish the necessary data in a simple and brief form for such teaching.

Thirteenth. That each school teacher in the state should be required to examine the eyes and ears of the school children in such manner and at such times as the state board of health shall designate, and keep a record of the results of such examinations.

Fourteenth. That whenever any child shall be absent from school for a period of four or more consecutive days, the school teacher shall be required to satisfy him or herself that such child was not absent on account of a communicable disease and to this end he or she shall have the power to require such child to present a certificate from a legally qualified practitioner of medicine to the effect that such detention from school was not due to any disease that would endanger the others attending the school, or in case the detention was due to such disease, that the child shall present a certificate from a local or county health officer setting forth the fact that proper disinfection has been accomplished and that it is safe for the child to return to school.

Fifteenth. That each school teacher in any public school in the state should be required to furnish this board with data obtained from the examination of the eyes and ears of the school children, regarding the number of pupils detained from school on account of sickness during any given period of time, and any other information this board may from time to time request.

Sixteenth. That a penalty be provided for any teacher who fails to comply with these requirements.

Seventeenth. That the State Board of Health should designate the books to be used in the public schools of our state for teaching hygiene.

Eighteenth. The law requiring the registration of births and deaths at the end of each quarter is crude and ineffectual. We believe that all births should be reported to the local or county health officer by the physician, midwife, nurse or head of the family within 72 hours after the birth. That no dead body shall be in any way disposed of without a permit from the local or county health officer, which permit can be secured only after the death certificate has been filed with such local or county health officer. That when no physician is in attendance the local or county health officer may make out the death certificate, provided he does not consider the case one that demands the attention of the coroner. That the local or county health officers shall keep accurate records of all births reported and all death certificates filed with him and shall transmit copies thereof to the secretary of the State Board of Health at given intervals. That the State Board of Health shall designate what information a report of birth or certificate of death shall contain. That the local and county health officers shall receive compensation for taking care of these records. That a penalty be provided for any one who shall fail to comply with this law.

Nineteenth. That there should be a clause in the law providing that all corporations or companies doing business in the state and employing a number of men, women or children shall, whenever requested to do so by the secretary of this board, furnish the State Board of Health with data regarding the general health of those in their employ, the number of accidents occurring and the results of such accidents and such other data as may be requested and may be of use to this board in performing the duties required of it.

Twentieth. Finally, that the present law is defective in so many respects that it would be useless to attempt to amend the same and, therefore, we suggest that an entirely new law be drawn up and that you appoint a committee to draft such a law and present a copy thereof at the next meeting of this board and that each member of this board make every effort possible to

secure the passage of such law at the next meeting of the legislature. Respectfully submitted.

(Signed)

WM. TREACY, M. D.

J. L. BELCHER, M. D.

THOS. D. TUTTLE, M. D.

The above report was unanimously approved and Drs. Tuttle and Treacy and Mr. J. W. Wade were appointed a committee to prepare and have drafted a law along these lines, to be presented to the board at its next regular meeting.

Dr. Southmayd asked if the county health officer of Lewis and Clarke county was making regular monthly reports as required by the rules of the board. On being informed that he had made one report during the last quarter, Dr. Southmayd stated that it had come to him that quarantine regulations are not being enforced in Lewis and Clarke county, and that it was undoubtedly the duty of this board to take official notice of such neglect. Dr. Belcher then stated that he had heard similar reports, and that one man had told him that when his children had scarlet fever in Lewis and Clarke county, quarantine was not enforced. Neither of these gentlemen had a specific case on which to file a complaint, but each felt convinced that quarantine regulations are not being enforced in this county.

Later in the evening Dr. Southmayd came to my office with the following informatiton: Last December scarlet fever existed in the house of a man named Wood, who lived on Sixth avenue between Hoback and Raleigh streets. That during the time the child was suffering from the disease the man went to and from his home daily and thus defeated the desired effect of quarantine. That the neighbors of this man can testify to the above.

Dr. Southmayd then introduced the following resolution, which was unanimously adopted:

Whereas, it has been brought to the attention of this board that quarantine regulations are not properly enforced in Lewis and Clarke county; and, whereas, it does appear to this board that the county health officer of Lewis and Clarke county has not performed the duties required of him; therefore, be it

Resolved, That the County Attorney for Lewis and Clarke county be and he is hereby requested to investigate such report and if found to be true, that he take such steps as may be found necessary in the matter.

The following resolution was introduced and unanimously adopted:

Whereas, as it has been brought to the attention of this board that quarantine regulations are not being enforced and sanitary measures are not being observed in certain cities in our state; therefore, be it

Resolved, That this board does urge the Honorable City Council of each city of 5,000 population or over to assign to some policeman the especial duty of sanitary officer, in addition to his other police duties.

The following telegram was presented:

Havre, Mont., May 3d, 1904.

C. E. Dutton, Helena, Mont.

Please advise Secretary, State Board of Health, the following regarding smallpox cases at Cut Bank: Deputy Sheriff Petigrew, of Cut Bank, states that the first case was turned out without fumigation. He was arrested by order of Petigrew at Conrad, but released on instructions from Dr. Brooks (county health officer) who said he had given him permission to leave. A child of J. E. Riddell had smallpox recently and when recovered fumigation was done by Mrs. Riddell and all the bedding taken to Cut Bank hotel. Within two weeks Mr. J. R. Riddell was taken down with smallpox. As near as I can say fumigation is not properly done before smallpox patients are turned loose and proper steps should be taken to have this remedied.

(Signed)

C. O. JENKS.

The secretary was instructed to communicate with the health officer of Teton county, sending him a copy of this telegram and ascertain conditions from him. Also to notify Mr. Jenks of the step taken and if necessary, that the secretary go to Cut Bank to investigate the matter and see that fumigation is properly done.

The following letter was presented:

Washington, D. C.

Dear Sir: I have to inform you that the second annual conference of State Boards of Health, with the Public Health and Marine Hospital Service, will be held at the New Willard Hotel, Washington, D. C., on Friday, June 3d 1904, at 10:30 a. m.

In accordance with the terms of the Act approved July 1, 1902. each board will be entitled to one representative at this con-

ference. You are requested to inform the bureau as early as possible of the name of the delegate who will represent your board. Respectfully,

(Signed)

WALTER WYMAN,
Surgeon-General.

On motion Dr. Thos. D. Tuttle was directed to attend this meeting as the delegate from this board.

There being no further business before the board, the meeting adjourned.

(Signed.)

WM. TREACY, M. D., President.

THOS. D. TUTTLE, M. D., Secretary.

Health Office, Helena, Mont., Aug. 2, 1904.

Pursuant to regular call the Montana State Board of Health met in regular quarterly session in the health office, at the Capitol, August 2d, 1904, at 2:30 p. m., President Treacy in the chair.

There were present Drs. Southmayd, Belcher, Wm. Treacy, President; Thos. D. Tuttle, Secretary, and Mr. J. W. Wade.

Minutes of the previous meeting were read and approved.

The following reports of the secretary were read and approved:

In accordance with your resolution adopted at the last meeting I wrote the following letter to the County Attorney of Lewis and Clarke county and received the following reply:

Helena, Mont., June 5, 1904.

To the County Attorney of Lewis and Clarke County, Helena, Mont.

Dear Sir: I hand you herewith a portion of the minutes of a meeting of the State Board of Health of Montana, held on May 3d, 1904.

"Dr. Southmayd asked if the county health officer of Lewis and Clarke county was making regular monthly reports as required by the rules of this board. On being informed that he had made one report during the last quarter, Dr. Southmayd stated that it had come to him that quarantine regulations were not being enforced in Lewis and Clarke county and that it was undoubtedly the duty of this board to take official notice of such neglect of duty. Dr. Belcher then stated that he had heard similar reports, and that one man had told him that when his chil-

dren had scarlet fever in Lewis and Clarke county quarantine was not enforced. Neither of these gentlemen had a specific case on which we could file a complaint, but each felt convinced that quarantine regulations are not being properly enforced in this county.

("Later in the evening Dr. Southmayd came to my office with the following information: Last December scarlet fever existed in the house of a man by the name of Wood, who lived on Sixth avenue between Hoback and Raleigh. That during the time the child was sick with this disease the man went to and from home daily and thus defeated the desired effect of quarantine. That the neighbors of this man can testify to the above.)

"Dr. Southmayd introduced the following resolution, which was unanimously adopted:

"Whereas, it has been brought to the attention of this board that quarantine regulations are not properly enforced in Lewis and Clarke county; and Whereas, it appears to this board that the county health officer of Lewis and Clarke county has not performed the duties required of him by law and by the rules of this board; therefore, be it

"Resolved, That the county attorney of Lewis and Clarke county is and that he is hereby requested to investigate such report, and if found to be true, that he take such steps as may be found necessary in the matter."

The above constitutes a portion of the minutes of a meeting of the State Board of Health held May 3d, 1904, and is submitted to you by direction of the board.

You will note that the case cited by Dr. Southmayd occurred in the city of Helena. I could give you others of the same character in the city. I have nothing to say in the matter other than that, as shown above, it is the impression of a majority of the members of the State Board of Health that quarantine regulations are not enforced in this county. Yours truly,

(Signed.) THOS. D. TUTTLE, Secretary.

The following is the reply of the County Attorney:

Helena, Mont., June 21st, 1904.

Dr. Thos. D. Tuttle, Secretary of State Board of Health, Helena, Mont.

Your letter of June 5, 1904, came to hand in due season, and I at once investigated the matter submitted to me.

I should have written to you sooner, but your letter was cov-

ered up in a mass of work on my table and for the time being forgotten.

After a full investigation of the matter, I found nothing upon which a criminal charge could be predicated. Mr. John S. Tooker, Secretary of the City Board of Health, assisted me faithfully in this matter. I remain, very truly yours,

(Signed.)

LINCOLN WORKING,

County Attorney.

In the matter of resolutions urging the designation of a certain policeman as sanitary officer in towns of 5,000 or over. A letter embodying the resolution and briefly setting forth the need of such an officer was written to the City Council and addressed to the Mayor of each town of 5,000 population or over in the state. No reply was received from any of these letters, and I have heard of no town that has complied with this request.

In the matter of reported release of smallpox patients without fumigation at Cut Bank. I communicated with the county health officer of Teton county and found that he was at Cut Bank at the time we were in session. He states that no patient was released without fumigation, but adds that the fumigation was entrusted to another, who he found had performed the work inadequately and he had gone there to refumigate before receiving my letter. From all the dealings I have had with the health officer of Teton county I judge that he is ready to perform all the duties pertaining to his office so far as he has knowledge of of the same, though his desire to make as little expense as possible for his county may lead him into error, as was the case when he entrusted the work of disinfecting to another.

On May 6th I received a letter from Surgeon-General Wyman stating that Dr. Styles was en route to Missoula to continue the investigation of "Spotted Fever" and requested me to meet him there and render him any assistance within my power. I went to Missoula on May 8th and met Dr. Styles. I found him one of the most energetic and enthusiastic workers I have ever seen and hope for positive results from his work. It has been reported through the newspapers that Dr. Styles stated that the tick was not the cause of "Spotted Fever." This, I think, is a mistake, for from what I saw and have been able to learn of Dr. Styles, I do not believe he would make a statement of that kind until he had thoroughly satisfied himself that it was absolutely true. That he is not positive on this point is indicat-

ed by two or three letters he wrote to me before leaving. These letters indicated that he was very doubtful in the matter and in one of them he stated: "I have been unable to connect the tick or any other insect with the disease," and in another, "I am taking a large amount of material with me that will require some time to work up." These statements indicate that he is not at all satisfied as to the cause of the disease, but anticipates doing much work on the subject after his return to Washington. He stated that he would make a preliminary report to Surgeon-General Wyman on his return to Washington, and I have written a letter requesting a copy of this preliminary report and hope to be able to present it to you at our next meeting.

On May 23d I left for Washington to attend the meeting of State Health Officers, and during my absence a letter was received from Dr. Gordon, of Great Falls, indicating that there were several cases of scarlet fever at Stockett and that quarantine was not being properly enforced by the health officer of that county, and requesting that the matter be looked into. Dr E. I. Bradley, who looked after my work during my absence, was made deputy health officer by the Governor and went to Stockett to investigate the matter. His report follows:

"On June 3d, in accordance with instructions from the Governor and the president of the State Board of Health, pursuant to a letter from Dr. R. P. R. Gordon, of Great Falls, indicating that there were several cases of scarlet fever at the town of Stockett that were not being properly quarantined, I went to Stockett and found the following conditions to exist:

"There were three cases of scarlet fever and three cases of diphtheria and one or two cases of each disease convalescent. The town was deplorably dirty, the water supply the poorest we have ever seen and the quarantine regulations absolutely ignored by several families of Slavs.

"I then went to Great Falls, where I met with the president and secretary of the county board of health and directed that the following steps be taken:

"First, that owing to the ignorance of certain families of Slavs and their inability to understand quarantine instructions, that a quarantine officer be installed in each infected district with instructions to enforce absolute quarantine.

"Second, that through disinfection and fumigation, under the

supervision of a competent officer, be carried out in each infected house before quarantine was raised.

"Third, that the town be thoroughly cleansed and placed in a sanitary condition.

"Having learned, from reliable sources, that the towns of Belt and Sand Coulee were in a condition similar to that found to exist at Stocket, I recommended that the same steps be taken in these towns as was directed for Stocket.

"The following day regulations were enacted by the county board of health of Cascade county in accordance with the above directions.

(Signed.)

E. I. BRADLEY, M. D.

In the matter of births and deaths reports, I desire to submit to you the following data: A letter from the county clerk of Custer county states in effect that there have been no deaths reported for the last quarter, but there should have been several, for I have personally known of some three or four. A few births were reported to him. Several county clerks were slow about sending in their reports and on being written to a second time they replied that if we could induce the doctors to report promptly we would receive their reports more promptly. What can we do about this? I have filed complaints against four physicians and in each case the county attorney has simply let the matter drop and under such circumstances I can see no use in filing other complaints. The quarterly report law is a very poor one. We might file a complaint and secure a prosecution and the offender would go before the jury and say, as so many have said when I have called their attention to the matter, "I intended to attend to it, but simply forgot it; I will attend to it as soon as I reach my office," and then "forget" it again. A law requiring an immediate report would do away with this "forgot" proposition.

I have no positive evidence that any one has failed to report a single birth or death, but present below some very strong circumstantial evidence. This consists of the names of each physician in each county who reported births or deaths or both for last quarter, and in a parallel column the names of these physicians in each county who failed to report either. Many of these physicians are known to some or all of you and you can judge for yourselves as to the probability of those reporting

having attended all the births and deaths that occurred in their respective counties.

This data was secured from the county clerks at dates ranging from the 11th to the 28th of the month of July.

In my report to the board I gave the names of the physicians, but in this report I will simply give the number of physicians reporting and failing to report in each county:

County.	No. Physi- cians Reporting.	No. Fail- ing to Report.	County.	No. Physi- cians Reporting.	No. Fail- ing to Report.
Beaverhead	6	3	Lewis & Clarke	5	17
Broadwater	2	0	Madison	2	9
Carbon	2	8	Meagher	2	3
Cascade	5	21	Missoula	5	20
Chouteau	5	7	Park	5	5
Custer	1	2	Powell	1	4
Dawson	2	2	Ravalli	4	4
Deer Lodge.....	4	11	Rosebud	2	0
Fergus	8	8	*Silver Bow....	..	..
Flathead	5	10	Sweet Grass....	3	0
Gallatin	5	12	Teton	5	5
Granite	3	2	Valley	1	2
Jefferson	3	6	Yellowstone	4	10

* This data is collected through the city ordinance in Butte and the very large percentage is secured by means of an immediate report law. The number of physicians reporting is not given in the report furnished to this office, and is unnecessary on account of the completeness of the report.

A study of the above figures will show that outside of the city of Butte there were 88 physicians who reported and 178 who failed to report. Now, if we will consider the standing of the men who failed to report it is evident that a very small percentage of the births and deaths attended by physicians in the state are reported. In the city of Butte, with a population of 47,635, there were reported 187 deaths and 230 births, while in all the rest of the state, representing a population of 173,240, according to the last official census, there were 138 deaths and 383 births reported. Do you believe that the social and climatic conditions of Butte are so different from those of the rest of the state that such a wide difference in the births and deaths rate should exist?

The existing conditions, shown by the above data, show more forceably than any argument, the utter absurdity of trying to collect vital statistics under the quarterly report law and without the active and willing co-operation of the several county attorneys.

Report of Meeting of State Health Officers With the Public Health and Marine Hospital Service at Washington, D. C., and of the Meeting of State and Provincial Health Officers.

In accordance with your directions, your secretary went to Washington to attend these meetings as your representative.

The meeting was called to order promptly at 10:30 by Surgein-General Wyman. Representatives from twenty-two state boards of health were present. As the roll was called the representatives from each state gave in a brief form the work being done by the board he represented.

I will not consume your time with the reports made by various boards of the work being done in the way of preventing the spread and obliterating cholera, yellow fever and malaria among the states which suffer from these diseases, nor of the work done by Surgeon-General Wyman during the last year in persuading Mexico to institute sanitary measures and thus prevent yellow fever from extending from that country to ours.

The report of the health officer from Hawaii, regarding the measures taken by that country to stamp out leprosy was most interesting and instructive. The disease is now fairly well under control in the Hawaiian islands. Those afflicted with it being isolated. The health officer reported that the people in the isolated district seem very well satisfied and that complaints of any kind are rarely heard.

Considerable interest was manifest in the "unknown" disease of our state. Of course, little information could be given them of a positive character, other than that found in the reports of Wilson and Anderson, copies of which were called for by most, if not all, present. Study of these articles will result in demands on the Marine Hospital Service for further information and result in stimulating them to further investigation.

In the afternoon the work of the Marine Hospital laboratory was demonstrated. This laboratory is one of the most complete in the country and in it a large amount of work is being done to protect the health and lives of the people of which the masses know nothing and the profession know very little as a rule. Standard specimens of toxines, antitoxines and viruses are prepared and kept constantly on hand. Specimens of all these drugs, if we may designate them as such, are bought on the open market and tested to determine whether they come up to the required standard. At the same time they are tested for any dele-

terious germs that may be found in them, and any that are found below the standard or that contain deleterious germs are immediately withdrawn from the market. Each firm manufacturing these medicines must hold a license from the U. S. government and they are very prompt to comply with any suggestions from the Marine Hospital service.

It was the opinion of several of the representatives that possibly there are viruses and antitoxines on the market made by firms who do not hold a license from the government, and it was agreed by the Surgeon-General to prepare a list of all firms under license from the government and the various state health officers will publish this list through their publications and through the newspapers of their respective states. Such action will result in driving any spurious articles out of the market.

The subject of tuberculosis was extensively discussed. So much is written on this subject and it is so easy for any one interested to obtain reliable information on the subject that I will not burden you with an account of the forcible manner in which the subject was presented at this meeting. The disease is undoubtedly one that comes under the control of health officers and its management should be as much in the hands of the health officers as is smallpox and scarlet fever. It is the unqualified opinion of all those who have given the subject study that the disease is **communicable; it is preventable and is curable.** With these facts well established those who have the control of sanitary measures and when supported by efficient laws, are guilty if they permit the tuberculous subject to distribute the germs of this disease over the floors of churches, schoolhouses, theaters and other public buildings, and on the streets of our cities.

Extensive discussions were had on the subject of oysters as a cause of typhoid fever. This has been repeatedly demonstrated and the object of the discussion was to endeavor to get such states as have oyster-fattening beds upon their shores to enact laws to prevent the fattening of oysters in infected waters. A point of interest to our state that was brought out in this discussion is the fact that oysters shipped to inland towns are very frequently, if not always, treated with formaldehyde or other preservatives. One health officer reported that one vendor reported to him that he knew they were treated with this drug before being shipped and that he always gave them an extra

dose if the weather was at all warm. This is a matter that should be looked into by the meat and milk inspectors of our state. It is probable that the formaldehyde will kill the typhoid fever germs, but it is substituting one evil for another.

The next subject under discussion was that of attempting to prevent the spread of venereal diseases. This is a subject that has commanded the attention of sanitarians for many years and yet practically nothing has been accomplished in the matter, nor can we do much at the present time. The inclination of men to object to having their morals brought into question has a large influence in this matter. There seems to be a feeling among a certain class of men that they have a perfect right to have gonorrhoea as often as they please and to transmit it to as many people as they can, and any effort to prevent their having this disease or their sowing it broadcast over the land is an infringement on their personal liberties. For any single state to attempt to make even the slightest move towards checking this disease would result in a great howl from the "liberty-loving bachelor," and, I regret to say, some of the "liberty-loving" married men. This is a "pat" statement, but each of you know that it is absolutely true. The various state boards of health, realizing that an effort of a single state would bring forth little fruit for good, but much condemnation from certain sources, determined to make an effort at concerted action, and to this end a committee was appointed at the meeting last year to draft a brief, simple statement to be given to each sufferer from a venereal disease, regarding the dangers of such disease, the best methods of taking care of one's self while suffering from it, the means by which it may be spread and the dangers to others, especially children.

This committee reported at the meeting this year, submitting the following proposed leaflet for distribution among physicians, to be given by them to their patients suffering from a venereal disease:

"GIVEN FREE, NOT SOLD."

"Instructions Regarding Venereal Diseases."

You have a venereal disease. The person who infected you may be entirely innocent, having through ignorance caught the disease by touching some article that was soiled by some one suffering therefrom.

This circular is given you to help you get well as soon as possible and to prevent others from catching the disease from you.

It is bad enough for you to be sick; you would make yourself guilty of a crime, if through willfulness or carelessness, you were to cause other people to be infected with the same disease.

The principal venereal diseases are clap (gonorrhoea), pox (chancre or syphilis), and genital sores (chancroid).

Gonorrhoea is caught most frequently by having intercourse with a female who is not virtuous. She may not know that she has the disease, at the same time a female who, for any reason, will have intercourse with a man not her husband, is open to suspicion.

Many a man has died from gonorrhoea caught from a woman who seemed to him the personification of health.

Many a woman has lost her life from gonorrhoea, caught from her husband, who thought he had been cured of the disease years before.

Gonorrhoea first affects the urethra (channel through which you empty your bladder). It may render you unable to urinate (by stricture); it may, and readily does, go upward into the bladder and produce frightful pains; it may ascend to the kidneys, making you dangerously sick for years, and it may go through the blood vessels to the brain or heart and so kill you. It may be carried to the joints and thus cripple you for life. It may destroy your testicles and thus make you unable to have children. How dangerous gonorrhoea is, will be evident to you when informed that if the smallest particle of the discharge from your penis is brought to your eyes you may be hopelessly blind within 48 hours.

If your wife gets gonorrhoea from you she is liable to be an invalid all her life, and instead of being a companion and comfort to you, will be a source of misery and danger. She is likely to die from the disease, and then **you are her murderer.**

If you infect your wife with gonorrhoea any baby born to her is likely to become incurably blind within two days after birth.

These are only a few of the things that can happen in consequence of gonorrhoea. To prevent them and get well as soon as possible, you must observe the following rules.

1. Eat very little meat; do not eat cheese or anything else that can constipate you. Use plenty of fruit and vegetables,

but no asparagus, spinach, tomatoes or cauliflower. Avoid also everything that disturbs your digestion.

2. Drink a gobletful of water every two hours, as much milk as you please, but no wine, beer, whiskey or other alcoholic beverage. Drink no vichy, seltzer, soda water or any other carbinated fluid.

3. Wear a well-fitting suspensory bandage, of a form that may be prescribed by your physician.

4. Do not ride horseback or bicycle.

5. Take no medicine unless it is prescribed by your physician. Avoid especially all advertised preparations; none but quacks and other swindlers advertise drugs to cure disease.

6. Keep away from women, do not even let your mind approach the immodest.

7. After urinating (emptying the bladder), and after clernsing your penis, wash your hands thoroughly in hot water with strong soap (common laundry soap is very good for this purpose.) Do not dry your face with the same towel you use to wipe your hands.

8. Any cotton or bandage you have worn on your penis should be wrapped in paper and burned.

9. Do not sleep with anybody.

10. Do not think of marrying until your doctor has, by repeated examinations, proved that you are cured.

Chancroid is a contagious sore which, however, does not "get into the blood." But it may destroy the penis (rot it off), unless energetically and promptly treated. It can produce very severe buboes (called "blueballs" by the ignorant), which may cripple the patient. The doctor will cauterize chancroids and open buboes to save you trouble.

Chancre (Syphilis or Pox) resembles chancroid when it first appears as a sore on the penis or elsewhere. It soon becomes a "blood disease," which takes at least three years to cure. If neglected it can kill the patient in a very short time. If it does not kill him it may blind him, rot his bones, or make him insane.

If an man or woman have pox when a child is procreated, that child is likely to be covered with foul, running sores; it may also be deformed and remain a cripple.

Syphilis can be caught in other ways than by sexual intercourse. You can get the disease by drinking from the same

glass or using the same fork or spoon that a person suffering from the disease has put to his mouth.

If the doctor pronounces you to have syphilis you must, to get well as soon as possible, and to prevent others **getting** the disease from you, observe all the rules mentioned before in connection with gonorrhoea. Furthermore:

1. You must not kiss anybody.
2. You must not let anybody use any article you have used.
3. You must use the medicine that the doctor has prescribed for you, exactly in the manner he ordered it, and precisely at the times he directed.
4. You must not marry until the doctor finally says that you are entirely cured.

WARNINGS !

If you remain a cripple or lose your eyes or die in consequence of either of the diseases mentioned in this pamphlet, it will be your own fault, because you did not heed the above warnings and did not obey the doctor.

If you communicate any of these diseases to any other person, you are **worse than the most cowardly murderer**.

The health board of your state has ordered this circular to be given to you, so that by taking care of yourself you may get well as quickly as possible, return to your work and be once more a **man**, of whom your state need not be ashamed.

However, this paper did not meet with the entire approval of the representatives present, and certain changes were suggested, and a committee appointed to make these changes and submit a copy of the revised leaflet to the various boards of health. It was agreed that each board of health be requested to have a supply of this revised leaflet printed, that each physician be supplied with copies of the same and that he be requested to hand a copy of it to each patient suffering from a venereal disease that he may be called upon to attend. It is proposed that this action be taken at the same time in all states and the committee was empowered to arrange a time when such action shall be taken.

You will notice that this leaflet requires nothing of the patient, it simply sets forth the dangers of the disease to himself and others and tells him how best to care for himself and avoid giving the disease to others. Some men will take offense at

even these suggestions, but the better class will not only not take offense, but will thank you for the suggestions.

The next subject under discussion was that of the examination of the eyes and ears of school children. We have had this subject presented to our board on a former occasion, and we have made an effort to secure these examinations through the various school boards, but these efforts met with no support on the part of the school boards and it is the opinion of your secretary that, regardless of the action of the National Association of Physicians, the National Association of Health Officers and the Association of Physicians in various states, our own included, our school boards will take this matter up only when required to do so by the laws of our state.

The matter of sanitary precautions in railway passenger cars was discussed. The need of this action is apparent to every one who travels on railway cars. If you will go into a day coach as the train approaches the end of a division you will find the brakeman sweeping the floor, and raising a cloud of dust that would almost stifle any one, and this dust is thickly planted with tubercle and other germs of disease which enter the system of those breathing the dust-laden air. If, during the winter months, you will go into one of these day coaches two hours after it has left a division point, you will wonder how the people live in the foul air they are forced to breath. The only time a breath of fresh air is let in is when a door is opened. No cuspidores are provided in these cars. Put up all the signs you want, make all the rules you like prohibiting expectorating on the floors, but men, women and even children must, at times, expectorate, and so long as there are no receptacles provided, they will expectorate on the floor. Good substantial cuspidores can be secured at a cost of one cent each. They are made of paper and can be burned at the end of each trip, thus destroying any disease germs that may be deposited in them. They are far more sanitary than the nickel-plated affairs in the sleepers.

The railway companies will tell you that they cannot ventilate the day coaches, that if the ventilators are opened the people will complain of the draft and demand that they be closed. Certainly they will complain of the draft when the ventilators are so arranged as to pour it directly on their heads the moment they are opened. Some of them will tell you that there is no other way to ventilate cars. This is all bosh. The Penn-

sylvania road has established a system of ventilation in their cars that is proving very satisfactory. This system consists of several hooded ventilators in the roof of the car. From each of these and passing down each side of the car and opening under or behind the steam pipes, passes a ventilator pipe through which the fresh air enters the car. This air passes over the heated pipes and is warmed before it reaches the passenger. The hood is so arranged that it can be adjusted to admit a greater or less amount of air as the conditions may require, and a dial situated in the end of the car, from which the hoods are automatically regulated, indicates the amount of air entering the car at any time. This is certainly an improvement over the old system, and I want to say right here that it seems to be the policy of the Pennsylvania road to adopt all practical suggestions that will contribute to the comfort and health of their passengers.

The question of cleaning cars was discussed. That there is a system of cleaning cars that is practical, with compressed air, has been thoroughly demonstrated, but how many roads have adopted this system? I know of none that operate in our state who are using this system. Perhaps some of you read an article published in one of the magazines last winter depicting the beautiful system of cleaning passenger cars in the depots at St. Paul and Minneapolis. Dr. Bracken, the secretary of the Minnesota State Board of Health, read this article and immediately sent a deputy to inspect the system, intending to give the roads using this system full credit for their excellent work in behalf of the traveling public. The result of the investigation of this deputy was, as Dr. Bracken aptly expressed it, that the article was a lie from beginning to end, that no such system of cleaning the cars with compressed air was in use in either the yards at St. Paul or Minneapolis. Such articles are admissions that the passenger coaches are filthy and the articles are intended to make the public think they are trying to keep them clean. Magazines that publish such articles should take the trouble to determine the truth of the substance before publishing it.

The matter of sweeping the day coaches is one that could be remedied with very little trouble. It is the duty of the brakeman, as a rule, to sweep the cars. He does this as he nears the end of his division, as he must turn the car over to his successor

comparatively clean. He is anxious to get off duty as soon as possible and therefore sweeps just before reaching the station. In the large majority of cases the train stops ten minutes at a division point. A car can be easily swept in ten minutes, so why not wait until the train reaches the station and let the passengers step out on the platform while the car is being swept? At the same time the ventilators and doors can be thrown open and the car aired. Thus the car could be cleaned much more thoroughly than when the passengers are in the seats, the air could be renewed and the passengers would be relieved from breathing the dust and germ-laden air and all at no expense to the company and a delay of only ten minutes in the time of the brakeman being relieved from duty.

Certain roads are ready and willing to adopt all practical measures for the comfort and health of their passengers, while others will do nothing that they can help. To which class the roads of our state belong we leave it to the traveling public to say. Whether we can get clean, well ventilated railway cars by asking for them, or whether we must secure them by legislative enactment we leave it to the representatives of the people at our next legislature.

Hundreds of little points were secured by your representative that would appear as nothing when reported, but which are of inestimable value in our work. As an example of these little things I will mention the method used by one state health officer in securing prompt reports from the local officers. When a report is not received on time he writes a letter, calling the officer's attention to the fact, and waits just long enough for a reply by return mail. Failing to receive it he sends a telegram at the expense of the delinquent officer, and does not stop to count the number of words used. If this does not bring the report another and longer message is sent in the same way. He says that the first message brings the report and the next does not have to be called for. I think this plan might prove efficacious in our state.

At times much apprehension has been felt at the prospect of the Bubonic Plague extending from California to other parts of our country. This apprehension was supported a few years ago by the reported lack of effort on the part of California health authorities to abate the disease or prevent its spread.

Whether these reports were with foundation I do not pretend to say, but the report of the health officer from California, especially regarding the steps being taken to abate and prevent the spread of this disease, would quiet the minds of the most apprehensive. Every thing that human ingenuity can devise is being done to free this district from this dreaded disease, and there is not only practically no chance of its extending, but it is highly probable that another year will find the infected district of San Francisco without a single case of the disease.

In addition to attending the meeting to which you sent me, I attended, at my own expense, the meetings of several state boards of health and gained much information that will be of use to our boards in its efforts to place our state in a sanitary condition.

In New York and St. Louis I visited several school buildings, with an idea of securing the most advanced ideas regarding ventilation of school houses. This is a matter that is sadly in need of attention in our state, for very few, if any of our school houses are properly ventilated, and many of them have nothing more than a mere pretense at ventilation. At the World's Fair is a "Model Country Schoolhouse" that is very simple in structure and can be built at as little, if not less cost, than those now in use in many of our country districts and give much better results. From the standpoint of the teacher, I heard it highly complimented. From the standpoint of the sanitarian it is not beyond reproach, but far in advance of those commonly in use.

I made every effort to secure a greater interest on the part of the Surgeon-General, Marine Hospital Service, in the investigation of our "Spotted Fever." The interest in the disease existed, but with the many calls made upon the bureau, it was difficult to get a promise of positive work. However, Dr. Wyman finally promised me that he would leave Dr. Styles, the head of one of the departments and a most worthy man, in the fields until he (Styles) said he could do no more or until he had determined the cause of the disease, and if he was unsuccessful in this, another expert would be sent out next year. This he did and Dr. Styles remained until the end of the fever season and then returned to Washington with a large amount of material to be gone over in the laboratory there. This positive promise on the part of General Wyman, to continue the investigation

into this disease until its nature is positively determined, is well worth all the trip to the meeting cost the state, as the reduction in the price of any ranch in the infected district will exceed the cost of this trip.

Resume of Work Accomplished During the Year Ending April 30th, 1904.

One year having elapsed since you elected me secretary of this board, and while I have given you a report at the end of each quarter of the work accomplished during the quarter, I deem it due to you to consider the ends accomplished during the year.

While there are many things that might have been accomplished in which we have made no effort, I believe that we have accomplished as much as we could possibly hope for with the means at our disposal. Many things have come up that have not been reported to you, simply because your secretary realized that we could not undertake them with the limited amount of money at our disposal. Several times I have thought it advisable to visit certain infected districts, but have had to leave the work to half-hearted health officers because of the probability that the money at our disposal would be needed for more urgent conditions. I have used the term "half-hearted health officer" not in disparagement of the health officers as such, but no one can expect the active interest and work from a man who is paid practically nothing for his services that you can from a well paid man. With very few exceptions, our local and county health officers are of the highest character, both as men and physicians, but in many cases their services are rendered at an actual financial loss to themselves. Think of asking a man to make the reports required of a health officer for \$10 a year, to say nothing of the work that must be done before these reports can be made. As shown in one of my quarterly reports, our health officers, with a very few exceptions, are performing far more work than their counties have any right to expect from them when we consider the salary they receive.

On taking charge of this office I found that four or five county health officers were making regular reports to your secretary, a few were making irregular reports while more were not reporting at all. I immediately wrote to each health officer, several of whose names I had to secure from the respective county clerks, and urged them to make regular and prompt reports and to push sanitary work in their counties. The large majority

responded promptly both with their work and their reports, while a small minority paid no attention to my letters. Some of this minority have resigned their office, others have had successors appointed without their consent, while a very few hold office and barely keep within the limits of the law. The result is that we now receive regular monthly reports from all but two or three health officers and they probably report when there is anything reported to them, but I am of the opinion that they make no effort to see that all cases are reported to them in accordance with the law. I am informed that the only way to get at them is under that portion of the law that makes it a misdemeanor for any officer to "knowingly and willingly" fail to perform the duties of his office, and that "knowingly and willingly" part makes it very difficult to get at them; besides, I am unable to find any place in the law where these health officers are required to see that these reports are made to them.

Immediately after writing to the health officers, I wrote a personal letter to each physician in the state, asking their assistance in enforcing sanitary regulations and calling their attention to the importance of reporting births and deaths. To this some replied favorably, others wrote me sympathetic letters regarding the task I had taken upon myself when I had as well let matters rest and draw my salary without so much work, while others replied not at all.

In the first issue of our Bulletin we published the opinion of the Attorney General's office regarding the law requiring the quarterly report of births and deaths and the penalty thereto attached, and stated that these reports would be called for from the various county clerks at the end of each quarter and that those delinquent would be prosecuted. In November we filed complaint against one physician for failing to comply with the law in this respect. In December, I again wrote a personal letter to each physician in the state calling his attention to this matter and also to the complaint filed in the case mentioned. This resulted in a moderately complete report of births and deaths for that quarter, but some failed to report even after this notice. In February I filed three other complaints that were given widespread newspaper notoriety. However, the county attorneys in the two counties where these complaints were filed quietly let the matter drop without prosecution. We are now receiving reports of about one-half of the births and deaths in

the state, which is a fair showing, as the work was not taken up in earnest until the first of the present year. However, a complete report of neither births or deaths can ever be secured under the quarterly report law.

A year ago quarantine was enforced in a haphazard manner, the physician, when he saw fit, reported his case to the health officer and stated that quarantine had been established. That meant the family, in some cases at least, were told to keep the children out of school and keep their mouths shut, otherwise, to go about their business. When the physician ceased attending the case the children returned to school and the family had the house disinfected or not as they saw fit. We now have a regular minimum time for quarantine for the four most dangerous communicable diseases that infest our state and the health officer is required to establish the quarantine and see that the house is properly disinfected at the end of the quarantine period. Rules for local and county health officers have been drawn up, printed and sent to the health officers over the state. Rules regarding what constitutes quarantine and directions for disinfecting have been drawn up, printed and each health officer supplied with enough to give a copy to each case of any quarantinable disease that may occur within his district.

During the first quarter of my service I sent a letter, with drawings, to the Mayor of each incorporated town and to the chairman of the board of County Commissioners in the state, regarding the sanitary disposal of human excreta. The matter of looking into the manner of disposal of this excreta in his district was urged upon each of these gentlemen. We trust that some of them took advantage of this simple and inexpensive method of disposing of this disease-producing substance.

One epidemic of smallpox, three of scarlet fever and one of typhoid fever have been investigated by your secretary and measures taken that resulted in checking the disease within a reasonably short time.

The work of investigating the cause of "Spotted or Tick Fever" in the Bitter Root Valley was prosecuted last year by Dr. Anderson, of the U. S. Public Health and Marine Hospital Service. His conclusions are largely to the effect that the tick is the cause of the disease in man, but he is inclined to doubt the theory that the gofer is the host of the germ of the disease. However, nothing positive is known, as yet, as to the cause of

this disease. Dr. Styles, of the Marine Hospital Service, is now in the field and we hope that the combined efforts of the three years will result in positive results, though it may require several years of constant work to determine the cause and discover a method of preventing this disease.

On assuming charge of the office no reports were received from other state boards and no annual or other reports from other boards were turned over to me among the properties of this office. I now receive about thirty publications from other state and local boards, ranging from weekly to quarterly publications. These are of great value to us in determining the methods used in other states and the results of such methods. In addition to this I have collected about seventy-five volumes of the transactions of other boards and matters pertaining to public health work, thus forming the nucleus for a library that will be of inestimable value to this board and especially to its executive officer.

Our "Bulletin," the first number of which was published last August, has required no small amount of work. In some cases it has required repeated letters to secure data that should have been supplied without being called for, while in some few cases I have been unable to get this data regardless of requests. Other matters published require much time to secure and tabulate, so that much time is consumed in the preparation of this little publication. However, regardless of the fact that our board is young and our efforts at publishing a bulletin are younger, it has received some very flattering notices from many similar publications and from the papers of our state. Whether these notices are altogether flattery is for you to judge.

We have just completed our first meeting of health officers in Montana. A report of this meeting will be given you later.

Your committee regarding needed changes in our laws pertaining to public health have carefully studied our laws in connection with those of other states and their reports have been submitted to you.

I believe we are now doing as much as we can towards improving the sanitary conditions of our state, under the present law, but with more stringent laws and penalties provided for those who fail to conform with the provisions of the law we could accomplish much more. Last fall we made an effort to secure the thorough disinfection of all school buildings before the

opening of school. In those districts where our request was complied with there was a marked falling off in the number of infectious diseases among the school children, while in those where our request was ignored the diseases continued almost as numerous as during the previous year. We also requested all school boards to establish a system of examination of the eyes and ears of school children. To this latter request your secretary received one single reply, and that from a small, isolated district in Gallatin county. We have no authority to insist on these suggestions being carried out and until this authority is given us by legislative enactment we are helpless in the premises.

If we can secure a law that will provide for the enforcement of the rules and regulations of this board there is much we could accomplish. Our school houses are poorly ventilated, in fact, many of them, beautiful in exterior, have no ventilation at all. Our state institutions are not inspected. Dead animals are thrown into our streams or in our public highways and we have no authority to stop it. Our Bulletin should be published monthly and sent free of charge to every physician and every citizen of our state who may request it. These things we can not accomplish without authority and without funds.

Respectfully submitted,
THOS. D. TUTTLE, M. D., Secretary.

The following resolutions were introduced and unanimously adopted: Be it

Resolved, First, that this Board hereby approves of the services rendered by its Secretary, Dr. Thos. D. Tuttle, in his enthusiastic and efficient efforts to bring to this state the best information upon the management of communicable diseases and the most approved means of preventing the spread of contagious and infectious diseases and the improvement of sanitary conditions in our state, and that we hereby express our thanks to him for the manner in which this important mission was performed.

Second. That these resolutions, together with an epitome of the valuable information he secured at the meeting of State Health officers with the U. S. Public Health and Marine Hospital Service and the meeting of State and Provincial Health Officers, be published in our Bulletin.

It was the opinion of those present that it would be well to continue the publication of the incomplete reports of births and deaths received, with the hope that it will encourage others to report, but that, under the circumstances, it would be unwise to attempt other prosecutions under our present law, until we have tried to secure a law by which we can get complete returns, believing that our coming legislature will enact such a law.

A letter from Dr. C. H. Horst, acting state bacteriologist, stating that the fee of one dollar did not justify him in making the tests for diphtheria, and asking that a fee of two dollars and a half be allowed, was presented. It was the unanimous opinion of the board that a fee of two dollars and a half was sufficiently small for this class of work and the secretary was instructed to notify Dr. Horst that said fee would be allowed, so long as our appropriation, which is small, holds out and that should our appropriation be exhausted before the end of the fiscal year, he would be asked to make gratis such examinations as might become necessary under the circumstances.

The report of the committee appointed to draft a new set of laws pertaining to public health to be presented to our coming legislature, reported.

This report consisted of a roughly blocked out law. The secretary was instructed to send to each member who should so request, and to the Governor, a copy of this report, with the request that they study the report and make any suggestions they see fit and return the same to the secretary, State Board of Health, as soon as possible. The committee was continued and instructed to have the proposed law put in legal form after having compiled, with such suggestions as may be made by the various members of the board. There being no further business before the board, the meeting adjourned.

(Signed) WM. TREACY, M. D., President.

THOS. D. TUTTLE, M. D., Secretary.

Report of Secretary for Quarter Ending October 31, 1904.

During this quarter the state has certainly been markedly free from sickness of a communicable character. There were fewer cases of contagious diseases reported than for any quarter in the history of this board. The work of preparing the biennial report and collecting the reports from the various health officers has consumed much time and has developed some very

interesting facts, which are presented in said report. One point that has been emphasized by many of the health officers and especially by those who have shown the greatest interest in this work, is the fact that there has been very little vaccinating done in this state for about four years, and that the occasional appearance of a case of this mild form of smallpox will, within the next year or two, result in another severe and expensive epidemic unless steps are taken to secure the vaccination of those who have not been successfully vaccinated.

On the 14th of October I received a letter from the County Board of Health of Cascade county, stating that several cases of Diphtheria had developed at Stockett and requesting that I come there and assist in the efforts to locate the cause and, if possible, suggest a method to free the town of contagion, the disease having existed there since last December. On October 14th I went to Great Falls and from there, together with the county health officer, to Stockett. You will recall that it was necessary for this board to make an investigation of conditions at Stockett and Sand Coulee, and at that time a thorough cleaning and placing of the towns in a sanitary condition was urged, as well as other measures.

The conditions at Stockett make it a very difficult point for the health officer to operate. While there is quite a town there it appears that every foot of the ground is owned by the company operating the coal mines at that point, the men leasing the ground from the company and building houses thereon. While the ground is "leased" I understand that the company reserves the right to cancel the lease at any time on thirty days' notice. This condition produced a question with which your secretary was unable to cope; namely, who is responsible for the property, the sanitary condition thereof, the householder or the owner of the land?

I met with three members of the County Board of Health and inquired why the town had not been thoroughly cleaned last spring as urged by this board. Two of them stated that they had directed the cleaning to be done and when it was not properly done they considered the question of having it done and collecting the expenses from the owners of the property, but that on consulting their attorney he had informed them that "they had better go slow in the matter; that our board of health law is a good one to bluff on, but not a good one to take any

active steps under; that the title says nothing about a county board of health, etc." I asked for a copy of that opinion, but was informed that there was no record of it, the opinion being a verbal one. Naturally, the county board of health, with such advise from their attorney, did not feel like taking any very active steps at enforcing the thorough cleaning the town so badly needs.

The conditions found to exist at Stockett and my suggestions in the matter are set forth in the following report given to the county board of health in Cascade County:

Office of the Secretary, State Board of Health,
Helena, Mont., October 17, 1904.

To the County Commissioners of Cascade County, Great Falls, Mont.

Gentlemen: In compliance with your request I visited the town of Stockett and, together with your county health officer, made a thorough investigation of conditions existing there regarding sanitary matters.

I found that diphtheria has existed there more or less constantly since last December. While at no time has there been a severe epidemic, there have been a few cases almost constantly. These facts were known to you and the object of my visit was to try to determine the cause of the continuance of the disease. As a result of this investigation I submit the following: The sanitary problem in the town of Stockett is a very difficult one to cope with. Their water supply is very poor at best and to overcome the effect of this poor water supply, so far as possible, the greatest sanitary precautions should be observed.

I found that sanitary measures are not observed to any extent, if at all. There appears to have been a very slight effort at cleaning the town as suggested some time since, and such of the rubbish as was removed was simply carried up the side of the hill, from whence the wind blew it back into the town. At present the alleys and vacant lots, as well as the ditch or ravine running through the center of the town, as well as many of the yards, are covered with old rags, manure and other rubbish. At at least two points water is allowed to run from wash-houses into an alley, thus adding to the unsanitary condition produced by the filth existing in the alley. At one place a duck pond was constructed immediately at the side of the well, and

from this puddle the filthy water seaped into the well. At another place the swill from the kitchen was thrown into the yard, on sloping ground, so that it ran directly into the well. The "springs" at the bottom of the ravine passing through the center of the town, from which many of the people get their water for domestic purposes are, probably, simply the result of surface seepage. On this point I am not sure, but it appears that way to me. In a great many cases the privy is located on the side of the hill above the well and, while there may be a scant fifty feet between the privy and well, the slope of the ground is so great that enough rain to cause the water to run at all would result in the contents of the privy vault being washed directly into the well.

These various characters of filth polluting the scant water supply tend to produce sickness of various kinds, while it is probable that many of the rags seen around the town and blown from place to place have been exposed to contagion and never disinfected.

Another point that needs attention is the method of disinfection after a contagious disease. I find that this important work is entrusted to a layman, who probably proceeds without judgment, in a mechanical manner, and without appreciation of the importance of the work he has undertaken. I found that one child had been in school all day last Monday and was evidently ill while in school. The next morning the child was found to have a severe attack of diphtheria. Therefore, all the children in school that day were more or less exposed and the local physician and health officer immediately closed the school and had the building thoroughly disinfected. As to the remedy:

I urged that the school remain closed for another week, in order that the limit of the incubation period of this disease might be reached, and this the school commissioners readily agreed to. I also urged that the teachers be instructed to send any child home when apparently ailing in any way, and thus avoid another infection.

As to the disinfecting question. I would strongly urge that you require your county health officer to do the disinfecting himself after any contagious disease and that no case be released from quarantine until he has thoroughly disinfected all exposed property and seen that all exposed persons have taken the proper bath and are provided with disinfected clothing. This

does not mean that they are to be provided with new clothing, but that their own clothing shall be disinfected.

As to the water question. As stated above, the water supply is scant and very poor and should be protected in every way possible against pollution. I do not know how the water supply can be improved unless it be by deep wells, which would be a "God-send" to the people of Stockett. But the water supply, poor as it is, can certainly be protected from further pollution by filth. To this end I would especially urge that a thorough cleaning of the town be secured. All yards should be thoroughly raked off and all streets, alleys, vacant lots, etc., thoroughly cleaned of all rubbish, refuse matter, manure, etc., and all the material thus obtained be carried to some point sufficiently distant from any building and there burned. This work can probably be accomplished without any trouble by simply presenting the matter and explaining its importance to Mr. Stockett, who I understand has charge of the property and, from all I am able to learn, is a thorough gentleman, sufficiently intelligent to appreciate the importance of such a move, and ready to act on the square when a matter is properly brought before him.

I would suggest that he be informed of the importance of this work and that he be required to have the town thoroughly cleaned, which can be done at a comparatively small cost. That he require each man to have the privy on his premises cleaned and provided with a water-tight box to receive the excreta, and that a small box of fresh lime be kept in each privy from which a small shovelful shall be thrown into the water-tight box each day. Require those who have wash-houses with drains opening on any street or alley to provide cesspools for such waste water. After the town is thoroughly cleaned, make such a rule as this: "Anyone who throws any rags, manure or rubbish of any kind into any yard, street or alley or on any vacant lot, except at such point as shall be designated by him (Stockett) as a suitable place to burn such rubbish, shall have a certain amount retained from his wages, such amount to be placed in a fund to be used for the purpose of giving the town a thorough cleaning each spring and fall." As I understand the situation at Stockett, the company has absolute control and would have no difficulty in adopting such regulations.

Should the above courteous methods fail to secure the de-

sired results you will have to resort to law to secure the abatement of the unsanitary nuisances now existing at Stockett.

The question of the advisability of placing a guard over those in quarantine was raised. This step I do not think advisable unless those in quarantine show a disposition to disregard quarantine regulations. In such case a guard would be of service. However, it would be a bad move to place a guard there simply to watch them and tell them to go back every time they started out. The object of a guard in such cases is, to my mind, to see that those infected do not expose others and if they attempt to disregard quarantine regulations after having been warned, then it is the duty of the guard to immediately file a complaint against them with the proper officer of the law. However, it is useless to file a complaint unless your proper officer will prosecute; pigeon-holed complaints do more harm than good. Respectfully submitted,

(Signed)

THOS. D. TUTTLE.

On October 20th I received notice from the County Health officer of Cascade county to the effect that the County Board of Health had adopted all the suggestions made in my report and were taking steps to have the town of Stockett put in a sanitary condition.

A matter of great importance that has been brought to your secretary's notice is that of the sewer system at the town of Havre. This question is, is it safe to permit the town of Havre to put their sewage into the Milk River? I have here a rather extensive correspondence in the matter, the substance of which consists of the following:

The first letter in this matter was from a member of your body (Dr. Southmayd) stating that the town of Havre was about to construct a sewer system to empty into Milk River and urging that I immediately investigate the matter and determine whether it was safe for them to do so. Not knowing just what power this board would have in the matter I referred it to the Attorney General for an opinion as to what steps to take. His opinion was to the effect that it was the duty of the county board of health to make this investigation and act in the matter. Then comes a letter from Dr. Hopkins of Chinook (Dr. Hopkins is Mayor of the town) to Dr. Southmayd to the effect that Milk River is the only water supply for the town of Chinook and that he believed it would be dangerous to the

health of the people of Chinook for the Havre sewage to be placed in the river. He believed that the matter should be immediately investigated.

The county health officer of Chouteau county was notified of the conditions and of the opinion of the Attorney General in the matter. His reply was to the effect that he had been to Havre and found that they were going to build a sewer to empty into Milk River and thought that they were ready to resort to law rather than stop. That he awaited further instructions. I again wrote him (sending a copy of the letter to the chairman of the county commissions) to the effect that it was his duty to determine whether the Milk River would stand the additional pollution without endangering the health of the people living along the course of the stream. The next letter is one from Dr. Hopkins stating that the county board of health would hold a meeting at Havre on the 17th to consider the advisability of permitting the emptying of sewage into the river and asking me to meet with them. I replied that if the county board of health wanted my advice in the matter I thought they would ask for it. That I considered the question one of great importance both to the town of Havre and to the people living along the course of the river. And that I thought a very thorough investigation should be made before giving an opinion in the matter. While at Stockett a telegram was received at Helena requesting that I meet with the county board of health at Havre but being out of town I did not receive the message until after the meeting of the board.

The next step in the matter was a call from the Mayor of Havre. He stated that Havre was perfectly willing to do whatever was right to protect the health of the people on the river, but that they were not willing to abide by the opinion of the county board of health, as they did not consider them competent to give a valuable opinion in the matter. He stated that he felt assured that the board would decide against the sewer and wanted to know what they could do in the matter. I told him that I was not an attorney, but that so far as I knew I thought they would have a right to appeal to the state board of health for an opinion in the matter, but that I had no legal opinion in the matter. Finally, on October 24th, I received a letter from the chairman of the county board of health to the effect that they had listened to testimony from the people of Chinook and

from Havre in this matter and that they were unable to come to any conclusion; that they were sure the city council would not abide by their decision and finally that it was their opinion that it would take experts to determine the matter, therefore, they appealed to the state board of health.

As the matter now stands Havre is putting in her sewer pipes and the state board has been appealed to for an opinion in the matter. I do not know whether they have a right to make this appeal or not, legally, but it seems nothing but right that the people of Havre should be entitled to an opinion based at least on a scientific investigation. It is probably the opinion of every member of this board that sewage should not be placed, untreated, in any stream in this state, but so long as our law does not provide that it shall not be done it seems to me that any people is entitled to a demonstration before they are forbidden the liberties granted to others. Lewistown empties her sewage into a small stream without treatment and why should not Havre, unless it is shown that it will pollute the waters of that stream. Personally, I believe that it is a crime for any town or person to put sewage into any stream in this state (our streams are too small), but if one is permitted to do so another should not be prohibited without an investigation.

On October 20th a case of diphtheria appeared in Lenox (Helena) and was quickly followed by thirteen other cases. These cases all appeared in the route of one milk dealer. We immediately called on the milk and meat inspector for a thorough inspection of the dairy. His report was to the effect that everything about the dairy was in perfect condition and a microscopical examination by Starz revealed no diphtheria germs. (A culture test was not made at that time.) Your secretary visited the dairy and found conditions as reported by the milk and meat inspector. I then directed that the dairyman and all of his assistants take a bath in 1-10000 bichloride; that all clothing and all cloths used about the dairy and all bottles and milk utensils be thoroughly boiled in 1-5000 bichloride, and that the wagons be thoroughly scrubbed with 1-2500. Also that a different wagon be used for distributing his milk until the wagon had been given at least three such cleanings. I also instructed the meat and milk inspector to notify all dairymen not to enter the yards of quarantined houses and when milk is left in bottles at such houses such bottles must be left there until the quaran-

tine is raised and the property disinfected, after which all bottles must be thoroughly boiled. I am glad to report that only one new case has developed since these steps were taken. I believe that Mr. Tooker is entitled to great commendation for his efforts to check this threatened epidemic. Believing that we were about to have a severe epidemic of this disease and realizing that it would be out of the question for many poor families to pay for antitoxine at the exorbitant prices demanded, I wired New York City, asking the board of health, who make their own antitoxines, to sell to us at the same rates they sell to New Jersey and Connecticut, which I am informed is a little less than one-half the price asked by dealers. I received a reply stating that they will furnish us with antitoxine at these prices and that the price lists were mailed that day.

Office of the Secretary,
Helena, Mont., Nov. 12, 1904.

Pursuant to call the board met in special session at 1:45 p. m. Present, Hon. J. K. Toole, Dr. Wm. Treacy, president; J. W. Wade and Dr. T. D. Tuttle, secretary.

Reading of the minutes of the previous meeting was dispensed with.

The question of preventing the town of Havre from putting their sewage into the Milk River, and numerous letters on the subject, among them one from the chairman of the County Commissioners of Chouteau county asking the State Board to take up the matter, were presented.

In the light of the opinion of the Attorney General it was the opinion of this board that it is the duty of the County Commissioners to act in this matter and that the State Board has no authority to take the matter up. It was the opinion of the board that the best method to pursue would be for the town of Chinook and others interested to bring impeachment proceedings against the town of Havre. The secretary was instructed to notify the chairman, County Commissioners, of the action of the board in the matter.

The secretary reported that several people from the town of Marysville had reported that there is and has been a form of "sore throat" in the town that appears to be contagious and that two cases have died. No cases of diphtheria have been reported from Marysville.

The secretary was instructed to call the attention of the county health officer to these matters and to the fact that Section 17 of the laws pertaining to public health requires him to investigate such matters.

The conditions in the matter of diphtheria at Helena were reported as follows: The first case appeared on the 20th of October, since then seventeen other cases have appeared, most of them having appeared during the week ending November 6th. Four cases have developed during the present week. Each of these eighteen cases have been taking milk from the same milkman. The meat and milk inspector reports the dairy in a most sanitary condition and that there is nothing there to account for the disease. This report was made to the secretary one week ago, but nevertheless four new cases developed, and all were using the same milk. The fact that every case of diphtheria that has appeared had been using this milk was considered sufficient evidence for the board to support the action of its president and secretary, who had the previous day, in the name of the State Board of Health and the State Meat and Milk Commission, ordered that the sale of milk from this dairy be discontinued.

The biennial report of the secretary was presented and ordered published, the Governor directing that it be taken to the state printer for publication.

The following resolution regarding "Rummage Sales" were adopted:

Resolved, That it is the opinion of the State Board of Health that rummage sales are a great menace to public health by conveying communicable diseases and we therefore urge all health officers to, so far as possible, prevent such sales and to at all times discourage them, by giving to the people information regarding the danger from collecting such cast-off materials and selling them to the public.

REPORT OF THE FIRST MEETING OF HEALTH OFFICERS IN MONTANA.

Minutes of Meeting.

Meeting was called to order at 10:30 a. m., May 2d, 1904. Prayer was offered by Rev. McNamee. Dr. John A. Donovan, of Butte, was elected temporary chairman and Thos. D. Tuttle, secretary.

On motion of Drs. Chas. T. Sweeney, of Great Falls; F. M. Poindexter, of Dillon and Thos. D. Tuttle were appointed a committee to consider the question of permanent organization.

The first paper, "Contagious Diseases in Custer County," was presented by Dr. L. C. Bruning, of Miles City. This paper was discussed by all present and a decided interest was shown in the subject matter.

After this a general discussion took place on the subject of sanitation in general, and the meeting adjourned until 1:30 p. m.

At 1:30 the house was called to order by Dr. Donovan and Dr. T. J. Sullivan, of Butte, was elected permanent chairman.

The first paper of the afternoon session was read by Dr. Chas. T. Sweeney, of Great Falls. This was followed by papers by Dr. T. J. Sullivan, of Butte; Dr. J. A. Donovan, of Butte; Dr. R. E. Hathaway, of Glendive; Hon. Theo. Brantly, of Helena, and Prof. W. D. Harkins, of Missoula.

The committee appointed to consider the question of permanent organization reported as follows:

"Your committee would respectfully recommend that we proceed to the formation of a permanent organization, to be known under the name and style of The Sanitary Association of Montana. That the object of this association shall be to disseminate knowledge regarding sanitary matters, devise means for the more effectual prevention of the spread of contagious diseases, to establish a more hearty co-operation between the local, county and state boards of health in their efforts to secure a more sanitary condition throughout the state, to study the results of efforts in this line in other states, and to use our best influences with the legislature of our states in securing better laws for the enforcement of sanitary regulations.

We recommend that a committee be appointed to draft a con-

stitution and by-laws for such an organization and that they be required to report at our next meeting.

(Signed)

CHAS. T. SWEENEY, M. D.

F. M. POINDEXTER, M. D.

THOS. D. TUTTLE, M. D.

These resolutions were unanimously adopted and Drs. Sullivan, Poindexter and Sweeney appointed to draft a constitution and by-laws.

In addition to the above the committee recommended that the constitution provide for two classes of members. First, active members, to include all regular physicians and members of local or county boards of health; and, second, associate members, to include all those interested in sanitary science and the improvement of the sanitary conditions of our state, but who are not included in the active members.

In addition to his talk on the examination of waters, Prof. Harkins gave a very interesting demonstration of the physical properties of radium.

The following resolution was presented by Dr. Sullivan and unanimously adopted:

In as much as the disinfection of premises infected by the presence of a communicable disease is a matter concerning, much more gravely, the health of the general public than the individual, particularly the individual who has just suffered from contagion, for it is to be presumed that he and his family are at least temporarily immune, and as under the system now in vogue in some localities this important measure of public protection is frequently omitted or inadequately performed, it is the sense of this meeting of health officers that the disinfection of infected premises be entirely removed from private control, that it be always performed by a competent public officer or under his supervision, and that the expenses be paid from the health fund, if such exists, or in its absence, from the general fund of the county, city or village.

On motion of Dr. Poindexter Drs. Hoyt, Sullivan and Freund were appointed a committee to draw up resolutions expressing the sentiment of the association regarding the work of the State Board of Health.

The following resolutions were presented by this committee and unanimously adopted. Be it

Resolved, That we, the local and county health officers in the state of Montana here assembled, tender a vote of thanks to the State Board of Health for its earnest endeavors to promote public wellbeing in our commonwealth. That we hereby express our appreciation of the difficulties under which the state board now works, and assure them of our hearty co-operation in their arduous and often unpleasant duties, and we hope that the medical profession and laity of the state of Montana will, in the interest of public health and sanitation, unite with us in upholding the State Board of Health in its work, which is the noblest and most important ever undertaken for the good of humanity.

The meeting now adjourned, subject to the call of the secretary, State Board of Health, every one present expressing a desire to be notified of the date of the next meeting and to be present.

ADDRESS BEFORE THE FIRST ANNUAL MEETING OF HEALTH OFFICERS IN MONTANA.

By Hon. Theo. Brantly.

Gentlemen of the Montana Board of Health:

On first impression it would seem somewhat incongruous that a layman should be supposed to have anything of interest to say to an assemblage of this kind, most of you being professional men engaged in a pursuit which requires more or less technical knowledge of subjects with which the average layman is not at all acquainted. There are points, however, where your duties come very nearly in touch with every citizen. They also overlap and have much to do with the profession of which I am myself a member. It is impossible to divorce the administration of the law, no matter what branch of it may be under consideration, from the interested observance and study of the professional lawyer, and particularly the judicial officer who has to do with the interpretation of it, whatever be the subject matter to which it applies. We all have our families. The enemy that you are engaged in combatting is the common enemy of mankind. Disease and death invade every household at one time or another. That which you seek to protect is the most precious boon of mankind. The battle, then, which you wage is a battle on behalf of humanity in general and of every indi-

vidual in partitcular. It also seems somewhat incongruous, when we look at our surroundings, that there should be a board of health or of health officers at all in the State of Montana. We look about. We see our beautiful mountains and valleys with our pure air and fresh, limpid streams. It would seem there should be no necessity for the calling which you gentlemen pursue, for one would think that the surroundings in a country like ours would minimize the opportunities of the common enemy of mankind, and that nature has done all for us that could be done by human ingenuity. But such is not the case. Wherever man goes he carries in his system the seeds of Death. He finds them in the air that he breathes. He drinks them in the water which he quaffs from the limpid streams. He is infected by the insects which fly about him, and he finds the taint in our beautiful valleys and among our mountains in a multitude of forms. So that there is an ever present necessity for this battle in order that he may live out the allotted length of his life and do what he may to elevate and better the condition of his fellow men.

This is your first meeting, and its purpose is a permanent organization. In other words: You are at the beginning of your work. This recalls an idea that occurred to me in connection with the Louisiana Purchase Exposition. A transaction occurred just one hundred and one years ago last Saturday by which there was transferred to the domain of the United States, through the agency of Robert Livingston and James Monroe and by the consent of Napoleon of France, a piece of territory which we call the Louisiana Purchase. It was bought without the consent of this government. It was thought by many to be an unwise purchase and that the agents of the young Republic had assumed to cast upon it a useless, profitless burden. A fierce struggle took place afterwards in the councils of the nation, as to whether the act of these devoted, patriotic, far-seeing men should be ratified or repudiated, and the subject matter of it be left to remain a bone of contention between Napoleon and the British. President Jefferson and the Senate ratified it because they did not see what else to do. But the results we are enjoying to-day. That piece of territory has been carved into fifteen empire states and two territories. The ground upon which we stand was a part of that purchase. So, by reason of that apparently insignificant, unauthorized, and,

we may say, unacceptable act, we have millions of homes for a happy, prosperous people and growing commonwealths which have added to the human race the blessings of freedom, individual independence and intelligent citizenship. From this small beginning we have developed the great empire of the Northwest.

Some one stated here this afternoon that this society was at its beginning, and that as time progresses it would expand in its aims and influences and be the better enabled to accomplish the results for which the legislature authorized its existence. That the legislative assembly created a Board of Health for the State of Montana is an evidence of the fact that our state is advancing upon lines of development in all laudable ways. Its action is only one step in the course of progress upon which the state has entered. We are now celebrating in the city of St. Louis the Louisiana Purchase as an epoch in the history of the United States; and it was a grand epoch. It is very appropriate that we should pause at the end of the first hundred years and measure the distance we have traveled, take note of our assets and gird ourselves for the accomplishments of the future—not in the smaller sense, but in the wide and more important one as effecting our moral, intellectual as well as physical comfort and welfare. It is also exceedingly appropriate that this society, engaged in this enterprise under the law, should voluntarily come together and consider means and measures which are necessary to carry out the purposes for which its members have been appointed under the law, to-wit: the betterment of the physical condition of their fellow citizens—and to gird themselves for the accomplishment of these purposes.

It is not inappropriate that we should be engaged in a deliberation of this kind. Some seventeen years ago when I first came to Montana, I was engaged in the teaching of young men and women the classics. After pursuing that occupation for some two years, I came to the conclusion that it was entirely incongruous with our free, active western life. I thought that in this undeveloped country an attempt to teach the classics was a kind of educational satire. Acting under the impulse begotten of this idea, I abandoned the effort and engaged in the profession of law. The cause of classical education in Montana, however, did not suffer from my mistake. During these seventeen years I have witnessed the growth and expansion of the public school system, as well as the growth and expansion of

our several state institutions, from the comparatively insignificant beginning of those early days, until now it is possible for our young men and women, if they choose to do so, to acquire in our own institutions finished classical training.

Strange as it may seem, the existence of what is called state medicine, or statutory sanitation, is of much shorter growth than the empire of the Northwest of which I spoke to you a moment ago, and when I say this I say it advisedly. The only system of sanitation known among the ancients we find in the Pentateuch. It had in it the application of every principle that any system of sanitation can exemplify. There were rules of health touching the sanitation of the home and its surroundings; the separation and treatment of those afflicted with contagious or infectious diseases; the regulation of the character of food used by the people; and the prevention of the importation of disease from the outside world. The system, however, was welded to the Jewish national church organization under a theoretical form of government. It was more or less dependent upon the church and the application of ecclesiastical law. By the dispersion of this people it practically became obsolete. But during the history of the Jewish nation as a nation the people were never afflicted with an epidemic, except in cases where diseases were inflicted upon them as a punishment for a disobedience of their laws. Up to the year 1875 there was not known anywhere among English speaking people any such thing as a system of law on the subject of sanitation. Under the common law no such thing was known. Under that system everything which interfered with individual health or comfort was treated as a nuisance. The remedy was by injunction. To remove the cause it could only be invoked after evil had occurred. Its recurrence in the future could be prevented in individual instances; but every single instance had to be treated by a separate suit, and the result was that unless a private individual cared to invoke the power of the courts and to pay the expense, the community was left to suffer. The law really had no power nor instrumentalities to engage in the work of systematic, effective prevention. It will occur to you that when an epidemic like the great plague which occurred and ran its course in 1664 in London, had fallen upon the people, the whole nation would be roused to activity on the subject of sanitary legislation. But such was not the case. I believe about the only result, so far

as England was concerned, was that a law was enacted soon after the plague passed away, making it a capital offense for one to leave his house after he had been warned by his physician that he was in quarantine; although as early as 1478, I believe, there were in England certain laws with reference to sewers in great cities like London under which the sewer commissioners had control of certain matters of sanitation in connection with their work. Outside of that and certain other isolated cases of like character to the statute passed after the great plague, I know of no statutory enactments. Parliament first took up the matter in 1875, systematized the law on the subject of sanitation and made it applicable to the entire kingdom. It is not strange, then that when our forefathers came to this country and brought the common law with them, they did not also bring with them and put into use any sanitary system. The common law is made up of that great mass of rules founded upon immemorial custom by which the rights of citizens were adjudged in the courts of England. Did it ever occur to you that it is impossible for an immemorial custom of cleanliness to grow up and become crystallized into law? If you take the individual, you will recall the difficulty your mothers had in making and keeping you individually clean, and you have but to cast your eyes about you upon the streets and alleys of our cities to apprise yourselves that no such thing as customary cleanliness exists. What is the business of everybody is the business of no one in particular, unless it is systematized and put into the hands of responsible administrative officers.

The first sanitary system created by law in the United States was that created for the city of New York in the year 1866. So far as I am able to learn from a hasty examination of the subject the earliest provision that we find in our statute law all that looked toward sanitation of any kind was enacted in 1796 by Congress, to regulate bills of health upon incoming and outgoing vessels in our harbors on the seacoast. The system created ordinance of the city of New York is necessarily complicated in detail, but, when executed and put into practice, is effective. Perhaps some of you who have devoted your attention to the study of the various sanitary systems know more about them than I do. The first state in the Union to pass a general statute upon the subject was the State of Massachusetts, which passed a general law in 1869. The next step taken we find to be the

Act of Congress of 1879, which created a National Board of Health, its purpose being to exercise the police power of the United States government within the limits of the Constitution, as applied to the intercourse with other countries, and between the various states, to prevent the introduction of infectious and contagious diseases into the United States from foreign countries and to prevent the spread of disease among the states, through the medium of interstate commerce. The Board created by the Act consists of seven civilians appointed by the President, and four administrative officers detached from the various departments of government. One of the duties cast upon it is to investigate and determine the nature and treatment of new diseases and to discover the causes of diseases about which little is known. Those of you who care to go into the subject and examine it, will find that these investigations are continuously going on.

I have been astonished to find that there are so many evils in the form of disease to which frail man is subject. They appear limitless. Doubtless they are. Since the time just mentioned we have passed through various epidemics. We have had great epidemics of cholera and yellow fever; of the last particularly in 1878. Both of these have occurred frequently in our southern states, and sometimes in the interior. Naturally, these should have caused the whole country to be roused to activity upon the subject of sanitation, prevention and cure. Yet such was not the case—at least not beyond the time during which the epidemic was prevalent. Not more, I think, than twenty states have enacted sanitary laws such as we have upon our statute books. Many of these are crude, and naturally so, because generally the result of hasty action under stress of circumstances. Such laws are executed with a great deal of laxity, except during the prevalence of epidemic, and usually have been a dead letter. It is only in times, when under stress of necessity brought about by the prevalence of a plague or epidemic, that the people have realized the importance of such legislation and have, by virtue of the necessity, made them efficient for the purposes for which they were enacted. Such was the case in Memphis and other southern cities in 1878. Though Memphis had theretofore been one of the most unhealthy cities in the United States, it is now one of the most healthy. This better condition is due to the wise action of the city authorities following immediately

upon the heels of the epidemic. It had theretofore been without drainage. Its streets had been allowed to remain in a filthy, uncleanly condition. These causes of disease having been removed, it has never since that time suffered any visitation. So it was demonstrated with reference to New Orleans during the civil war. Wise administration removed the cause of disease, thus preventing epidemics. Everybody has heard of the experience of General Butler. The means used by him during his occupation of the city, though somewhat rigorous as it is natural to expect that war measures will be, resulted in a clean, healthy city, so that the federal troops, so long as they stayed there, were free from epidemic of any kind or description. The same has been the experience throughout the country. The trouble has been that, as time passes on and the necessity for special activity ceases, neglect is again the rule and guard is relaxed until the next stress comes, when activity is again aroused. But why should this be so? The men, women and children who are lost through the agency of epidemics are a very small percentage of those who are sent to premature death because of lack of proper sanitation. You discuss tuberculosis, scarlet fever, diphtheria and a great variety of those diseases which are infectious or contagious. So far as the average man is concerned it makes no difference whether they are infectious or contagious or whether they affect him when in epidemic or sporadic form. The point of interest to him is, why should men whose duty it is to administer the law, neglect their duty in these particulars, when the cause may be removed by a constant, intelligent attention to it. Your interest is aroused by personal contact with each other and a consideration of these subjects while you are assembled in this meeting. Why should your interest cease when this meeting disperses? Why should not the law be made an active, living force in the community and be made to accomplish the purpose for which it was enacted?

Sanitary laws have not to do altogether with the physical man. Cleanliness is next to godliness. Indeed, I think it is productive of godliness. You do not find virtuous people who are not also cleanly. You do not find virtuous man, generally speaking, who is not also healthy. How can a man who is not healthy and strong, free from the ravages of disease, be spurred on to activity by those hopes and aspirations which appeal only

to the sound mind in a sound body? You are not, and are not designed to be, mere automata to be guided by the strict letter of the law, but intelligent, sentient beings, supposedly engaged in carrying its spirit into practice for an ultimate purpose; the elevation and betterment of mankind, morally and physically. In other words, you are ministers of the gospel, just as much as one who stands in the pulpit and undertakes to minister to the spiritual welfare of his fellowmen. If he be an honest, true, faithful minister, he preaches cleanliness in the home, cleanliness in the surroundings and cleanliness in one's private life. If you do your duty as ministers of the law, you will not only preach cleanliness in one's surroundings, cleanliness in one's person, but also cleanliness in one's life. Because I insist that no man with a foul, impure private life can be an efficient citizen in any department of our political economy. Upright living and good citizenship go together. Your calling makes for the establishment of both. Your duty overlaps the duties and responsibilities of all other citizens who are interested in maintaining law and order in the community, and every good citizen should not only be in sympathy with you, but should be willing to uphold the law and your efforts to administer it, by paying the necessary expense of administration.

It is very gratifying to be able to point to our Code and say that we have a magnificent system of health laws. But what do they amount to unless they are enforced? It is well known that we have had in the State of Montana for many years, almost since the organization of the territory, statutes upon various subjects which fall properly under the cognizance of health officers. For instance, we have had laws with reference to the sale of certain noxious drugs. We have had laws regulating the registration of births and deaths and marriages. We have laws touching various other subjects which fall very properly within the cognizance of the health officer, but the observance of them has been the exception rather than the rule.

There are one or two suggestions that I wish to make in connection with these remarks. Then I will have finished. The disposition has always been shown on the part of the legislature to relegate the authority to look after the health of the community to local officers, who are not accountable to any superior officer or department of the state government. For instance, the Board of County Commissioners constitutes the County

Board of Health. These have always, up to the present time, been absolute in authority within their own counties, accountable to no one but the people. So the statute touching municipal corporations has authorized boards of health in the cities and towns. Instead of finding these two local boards acting in harmony, both striving to administer the law according to its import, we often find them engaged in conflict with each other as to their appropriate duties and the extent of their authority. And further than that, we have seen unseemly conflicts as to the liability of a particular municipality for the expense attendant upon the proper treatment of an epidemic or of visitations of contagious diseases. I have personally known of a case of a private citizen left to suffer from some deadly contagious disease while the local authorities were engaged in a contest to determine who was responsible for his care. This ought not to be so. But it probably will be so until an effective system has been studied out and a distribution of authority has been properly made. I venture to say that you will find that no system which can be devised will be successful and accomplish in a systematic, regular way the purposes which are sought to be accomplished, which has not an executive head connected with the administrative department of the state government to which every local authority is accountable. I do not mean to say that the board of county commissioners should be deprived of their authority; nor do I mean to say that the city boards of health should be abolished. What I do mean to say is, that their powers should be so adjusted that there should be no room for unseemly conflict, and this can be accomplished only by systematizing the whole matter and regulating it as we do other branches of the state government. There is no strife, no conflict of authority between county governments and the state authorities; nor is there any to speak of between counties and cities in the administration of their respective duties in other lines. I would suggest that one of the most important things to be considered by this body is the devising of some such system, so that the power of the government can be brought into exercise to accomplish systematically and effectually the purposes for which this statute was passed.

There is another thing which should not be overlooked. Some mention was made of it this afternoon. How is the expense of the administration of this law to be paid? It goes without say-

ing that our people are most generous in contributing their money for public enterprises. I think sometimes that they bear heavier burdens of taxation than any people, and I dare say that if you look over the rates of taxation which the people pay in this state and compare them with those of other states, you will find them more liberal than those of any other state in this Union. A great deal of this public money is wasted. For instance, a recent legislature passed an Act creating county high schools, for which there is no obvious use. You will find in some of our cities a county high school side by side with the district school. The same branches are taught in both. The result has been to multiply faculties without a corresponding multiplication of duties. To keep up these schools we are spending money which would better be spent in looking after the public health. We contribute liberally for their support, yet for the protection of the public health scarcely any appropriation is made at all. If any is made, it is made in such a way that there is practically no intelligent way to expend it. The people have a right to establish these high schools. Yet it seems to me that it is much more important that we have the health of the community and the children in the common school intelligently guarded. I would rather have one strong, healthy, vigorous boy or girl who knows the three R's well than half a dozen puny, weak, bloodless individuals whose heads are filled with all the learning that can be found in the books.

The subject upon which you are deliberating is a great subject. There is no branch of it that one can treat with any degree of fullness in the course of a few minutes. The mere enumeration of the things that are brought to the cognizance of the health officer, the number of the powers that he may exercise under an intelligent system, and the risks he assumes would take up very much more time than you would be willing to allow me. As a member of the community, however, I am heartily in sympathy with your work, as much in earnest about it as you are yourselves. While under the law as it now stands, your efforts will be very much hampered; yet, by such meetings as this, by disseminating knowledge among the people, you are creating a public sentiment through which your efforts will be rendered successful ultimately, and the purposes for which you have come together will be finally and effectually accomplished.

DEFECTS IN HOUSE BILL 104.

Dr. R. E. Hathaway.

Mr. Chairman and Brother Health Officers:

When a physician, unless he be also a lawyer, undertakes to criticise a set of legal provisions that criticism must necessarily smack of those provisions only to which trials and tribulations have directed his attention.

I have no doubt that every one of you have some criticism of our health laws as they are to-day, and my only desire in opening this discussion is that you may refute mine, or add your own to my criticism in the after discussions.

The practicing physicians of Montana to-day have no time for lawsuits.

Therefore, a bill which has for its aim the definition of the powers and duties of Boards of Health of state, county or town, should be so plain, should be so definite, should be so carefully worded that "He who runs may read," be he doctor, lawyer or layman.

When harmony prevails in all state and county offices; when state and county officers are mutually working for the benefit of their communities; when harmony and common sense govern their actions; then have we as health officers no use for quarantine laws.

But when, split up by political opinions, divided against themselves, those officers are in open warfare with each other, each trying to pick flaws in his opponents actions, then must we have laws whose interpretations may not be misrepresented.

Again, in the sick room, in the first few days of scarlet fever, when the mother and the father of the loved one are watching with straining hearts for the least slowly appearing signs of improvement; in the decisive hours of diphtheria when the fraction of a day may see the snapping of the slender thread that binds the heart of the parent and child, then need we no quarantine laws.

But when the stricken child is again strong, when he is able to run and play about the yard as well as ever, then must the law say to those parents "so long must you observe quarantine."

Again, when the ranchman or cow puncher, who is one of a round-up of perhaps twenty men, is told that because of a few pimples on his body, pimples that cause him little or no dis-

comfort; when he is told that because of these pimples he must be isolated from his fellows for a period of four weeks, then we need laws and a way of enforcing them. Then is when the health officer is cursed, then is when he is accused of partiality, and of even maintaining quarantine for personal spite or grudge. Strange, isn't it? But nevertheless a potent factor in the experience of every health officer within the sound of my voice to-day.

First, in regard to the enforcement of our health laws, any law which gives a board of health authority to establish quarantine should distinctly state that the board of health may call upon the Sheriff's office or upon the city police to maintain that quarantine.

Under the present law the health officer has power to investigate and take proper steps to prevent the spread of a dangerous disease. But further than this he has no power beyond swearing out a warrant for violation of his orders before a Justice of the Peace. Thereby incurring the lifelong enmity of that offender and of that offender's friends.

The Sheriff, by virtue of his office, should be a member of the county board of health, and the health officer should have the right to call upon the Sheriff of his county whenever he feels that trouble may arise or that a guard may be needed. He should not be obliged to investigate first, but should have the privilege of asking the Sheriff to accompany him on his trips of investigation, thereby making his quarantine more impressive by virtue of the authority vested in the Sheriff's office.

Again, House Bill 104 makes no provision whatever in regard to prisoners confined in common jails, and who are attacked during their confinement with some communicable disease.

Let me cite one instance. A prisoner confined in a county jail awaiting trial developed smallpox ten days after his incarceration. The construction of the jail was such that he could not there be isolated from the rest of the prisoners. The county attorney claimed that there was no law to move him, but that he must remain in the jail, in intimate contact with thirteen other prisoners; but with the insistence of the health officer and the Sheriff the prisoner was removed to the pesthouse and a special deputy, appointed by the Sheriff, placed over him. For five days he was sick enough to die, but slept with his ankles chained. When he was able to sit up and take notice the ankle

chains were removed and an Oregon boot weighing twenty-five pounds was rivited to one leg. The guard was instructed to redouble his vigilance. Ten days before the quarantine was up the prisoner escaped and neither he nor the twenty-five pound boot has ever been heard from since. Who was blamed for his escape, the guard? Oh, no! Who then? Why, the health officer, of course.

An efficient health bill should contain a section wherein the law shall state that an infected prisoner shall be removed under guard to some place of safety, there to be securely kept, and to be returned to the jail at the expiration of the term of quarantine.

House Bill 104 states that when disinfection and cleansing of any house or its contained articles is necessary, the household is to be given written notice to attend to same. I say to you that such a provision is absolutely worthless. Well enough is such a provision with the conscientious and law-abiding citizen, but how different in the following instance, in the speaker's personal experience: A family who for some reason did not enjoy harmonious reciprocity with their immediate neighborhood developed scarlet fever, five cases in all. They were quarantined under protest, and kept under quarantine per force. A special guard being appointed. The health officer in this instance was subjected to abuse and censure from the female head of the family for enforcing quarantine. When the health officer appealed to her better self, stating that she would hardly forgive herself if, through her carelessness, a neighbor's child should contract the disease and die from it. In a burst of passion she replied, "I wish they would, none of them have ever been neighborly with me, and I wouldn't care if they all took it." That woman meant that, and that woman is the only one we can depend upon with the present health law to disinfect her house and clothing.

As you all know the thorough disinfection of an infected residence is the careful work of hours, and is the most important work of our entire system of quarantine from our standpoint, and it should not be left to the laity, who understand nothing about bacteriology whatever, and whose only ideas of microbes are obtained from caricatures in the comic magazines.

Again, disinfection is not for the benefit of the family who have already passed through the disease, but for the protection

of the community at large who have not yet contracted that disease. And if the householder is willing to have his premises boiled up or burned up or smoked up for the benefit of a community, then you must agree with me that the community should pay for the services and the time of the health officer, who himself should personally supervise the work, and for the disinfecting material used.

Our present health law does not provide that there shall be in incorporated cities or villages a local health officer, nor does it give the County Board of Health jurisdiction over such city or village. What is the result? There is in this state a city of 2,000 souls with one hotel which feeds 300 people a day. The slops and closets from this hotel drain through an open ditch half a mile through the city limits. In the summer time day and night the bottom of this ditch is strewn with putrid material from the hotel covered with flies and giving off sickening odors. Cattle crossing this ditch sometimes, if very thirsty, will drink from these polluted waters. And the people living along the ditch have no redress nor any authority to whom they may make their appeal.

Section 11 provides that the County Board of Health may declare quarantine and gives them power and authority to enforce that quarantine. Very good, but Section 11 neglects to make the secretary of the board of health the executive officer thereof, as the Secretary of the State Board of Health is made its executive officer. Note the result in one of our Montana counties. The secretary of the board is notified of a case of scarlet fever, he investigates and quarantines the infected premises. But that quarantine is only a moral quarantine. Before we can establish an official quarantine the entire board must meet. A wise measure, indeed, when one commissioner lives thirty miles in the country one way and another forty-five miles in an opposite direction. The calling of these commissioners together requiring at least four days before a quarantine is established that can be enforced by law.

A foolish interpretation, say you, but I say to you that the experience of one county may be the experience of any one of our Montana counties under like conditions, and we as health officers cannot afford the friction to which a misinterpretation would expose us. By all means the law should distinctly make

the health officers the executive officer of the County Board of Health.

An efficient health law should contain a section whereby, without violating the laws relating to the delaying of the U. S. mails, the State Board of Health is privileged and empowered to detain railroad cars or any public or private conveyances if there is reason to believe that such cars or conveyances contain any passengers or property which has been exposed to any dangerous communicable disease, and the State Board of Health should have the power to return such railroad cars to the places from which they came, together with all the passengers and infected furnishings. Or, if not returned, to place the same under the care of the local or County Board of Health or take care of or dispose of under the advice of the State Board of Health. Such a law should be so worded that it would apply to cars coming into the state or between localities within the state.

Great care would have to be exercised in the drawing of such a section, as the U. S. laws pertaining to the delaying of the mails are very strict and a railway company might claim that such infected car was a part of the train, refuse to continue without it, and be sustained by courts, as I think was done in your neighboring city of Butte when the mob detached the Pullmans and bade the crew to continue with the mail cars.

There is in our state a most potent means at our command for the prevention of disease, and every health bill that neglects to make use of this wonderful power is incomplete, inadequate and unworthy. There is a power, the proper use of which can do more to keep the pages of state health records clear than all the laws that could be enacted. This powerful factor could in a few years do more toward clipping the wings of that dread spectre, tuberculosis, that deadly shadow which blots the sunshine from the hearts of one out of every seven of our people to-day, than all the consumptive hospitals and anti-spitting ordinances that can be established. I refer to our public schools. Let us embrace in our health laws a section whereby provision is made that there shall be taught every year in every public school in Montana, the principal modes by which dangerous communicable diseases are spread, and the best methods for the prevention and the limitation of these diseases. Let the state Board of Health send to school superintendents and to the teachers printed data, whereby such teachers and superintend-

ents will be enabled to comply with this act. All school boards should be required to direct their superintendents and teachers, under penalty, to give oral and blackboard instructions from data supplied by the State Board of Health. Itemized expense for the complying with such provision should be audited by the State Board of Health and paid by warrant drawn by the Auditor General from the state treasury.

A provision should be made whereby there should be established and maintained by the state a hospital for the treatment of tuberculosis. In every one of our county poorhouses we have each year a number of tubercular cases, and these cannot be given the attention and care they should have, and which can only be obtained in institutions devoted exclusively to the treatment of tuberculosis.

The general public are fast realizing that this loathsome disease which so long was thought to be hereditary and incurable, is infectious and curable, and that it may be checked by ordinary measures of sanitation and hygiene, and to this end a carefully worded measure should be prepared for our next legislature for the creation and maintenance of a state hospital for the treatment of tuberculosis.

Gentlemen, Montana to-day stands high in the opinion of her sister states. Her mammoth mining and stock interests are more than merely local. Her statesmen command respect in our National Legislature; why should she not be the first of her group of states in the advancement of provisions to protect the public health? What a royal step would be the adoption of a compulsory vaccination law.

Ravalli county, with its \$7,000 smallpox epidemic, should be a powerful argument for such a bill. The year is yet but four months old, and Dawson county has already spent over \$1,000 for smallpox alone; Rosebud, Custer and no doubt every county in the state can add its dollars to the argument.

Whether or not Montana is ready for compulsory vaccination can only be decided by a vigorous discussion of a compulsory vaccination bill. Had the members of the present Legislature attended schools where, as has already been suggested, the method of prevention of infectious diseases had been taught, I have no hesitation in saying Montana would be ready for compulsory vaccination. But whether Montana as a state is ready or not we, as custodians of the health of the state should advo-

cate it to a man. And to this end a health bill should make a provision for the vaccination at any time when thought necessary, compulsory or otherwise, of every child not previously vaccinated and of all other persons who have not been vaccinated within the last five years previous. This vaccination to be done without expense to the person vaccinated. I do not think such a provision would be too radical.

Some of the states already have compulsory vaccination laws in effective operation, and we could at least compel the children attending the public schools to be vaccinated.

In conclusion I would call your attention to the following summary in which I think House Bill 104 is deficient.

It should provide:

1. That it is the duty of public officers, sheriffs, constables, and all other officers and employes of the state to sustain and enforce the provisions of the State Board of Health.

2. That the sheriff should be ex-officio, a member of the County Board of Health.

3. That incorporated cities or villages should be obliged to have a local health officer or be placed under the jurisdiction of the County Board of Health.

4. For the removal of prisoners confined in common jails who are attacked by dangerous communicable disease, their safe keeping and return to said jail at the expiration of the term of quarantine.

5. That the Secretary of the County Board of Health shall be its executive officer, as the Secretary of the State Board of Health is its executive officer.

6. For the detention and disposal of infected railroad cars and other conveyances, together with their contained passengers and properties.

7. That the State Board of Health may require railroad and other transportation companies to refuse to take passengers from infected districts, boundaries of which shall be defined by State Board of Health.

8. That disinfection of infected residences and articles shall be done under the personal supervision of the health officer at the public expense.

9. For teaching in the public schools the principal modes by which dangerous, communicable diseases are spread and the best methods for their prevention and restriction.

10. For compulsory vaccination of school children at the public expense.

11. For establishment of efficient pure food laws and the duties of Boards of Health in relation to the same.

12. For establishment and maintenance of a State Hospital for the treatment of tuberculosis patients.

COMMUNICABLE DISEASES IN CUSTER COUNTY.

L. C. Bruning, M. D., Miles City.

The subject allotted to me, "Communicable Diseases in Custer County," though in any phase a naturally extensive one, may become of interest to some of my colleagues present, from the fact that Custer county presents in its country or ranch population as sparsely settled a community as can be found in the state. In size, I believe this county is the second largest in the state, and one of the largest counties in the country. Travel between ranches and the small settlements and the county seat, Miles City, is greatly restricted by the lack of good roads, and practically every ranch may be considered isolated except in the immediate vicinity of the county seat, distances being anywhere between one and twenty-five miles between ranches. Every natural hindrance to the communication of infectious disease is, therefore, present, and it is within the recollection of the old-time resident that up to the time the Northern Pacific railroad came through in '81 there had been no epidemic of any disease in the Yellowstone Valley. With the advent of the railroad, however, this practically virgin settlement became the harbinger, not only of the germs of civilization, but of the germs of the scourges of mankind as well, which in a gradual and progressive manner have invaded in turn the county seat, the smaller settlements and the isolated ranches in the forms of the various infectious diseases known to medical science. Nor must I neglect to state that epidemics of measles and smallpox occurred among the Indian tribes of the Yellowstone Valley prior to '81, a particularly severe epidemic of smallpox occurring during the winter of '76, attended with severe mortality, and due in all probability to the heroic methods of treatment of the disease followed by the afflicted Indians. This consisted in undergoing a prolonged sweat bath in a wicky-up, and then emerging from this little tent and plunging into the icy cold water of the Big

Horn, where a hole had been chopped in the ice large enough for the purpose. The shock was sufficient in almost every case to cause death, and, as an old contract Indian doctor facetiously remarked, "This method of procedure proved a most effective preventive of the pitting of smallpox."

It was in '81, however, before the white population of Custer county saw its first epidemic of smallpox. Forty-two cases developed, of which eight died, and it may be of interest to note that the cost of the epidemic to the county was in the neighborhood of fifty thousand dollars, the attending physician's bill being alone thirty thousand dollars.

The first authenticated cases of diphtheria I can learn of occurred in 1890, and was traced to the clothing of a servant girl who had come from the east some two months previously and had worked in a house where a child had died of this disease shortly before her departure for Montana. Three children in the family where she was employed contracted the disease about a week after this girl had worn some of her clothing which, until then, had been locked in her trunk. Two of these children succumbed to the disease. Since that time sporadic cases of diphtheria have occurred almost every year, in many cases untraceable, and one epidemic raged at the Reform School in 1899, when 73 of the inmates developed the disease. The cause of this large number of cases was that diagnosis was not made until the third case developed, when practically the whole school had been exposed, nor were prophylactic doses of antitoxine administered.

Typhoid fever, according to the report of the old-timers and from statements of their physicians, first occurred in the Yellowstone Valley the year the Northern Pacific was completed, but cases of mountain fever, by them believed not to have been typhoid, occurred rather frequently as early as 1876. Even up to the later 80's typhoid fever was a very rare disease in Eastern Montana, and occurring then only in the centers of population, while at the present time and since the last four years this disease has been present every autumn almost epidemically in Miles City, and sporadic cases occur now in nearly every section of Custer county.

I am indebted for much of my data to the early history of infectious diseases in Eastern Montana to Dr. C. B. Lebcher, one

of the old-timers and still a practitioner of the state at Plains, Mont., and desire hereby to express my thanks to him.

I shall now enter briefly upon a discussion of the recent history of infectious diseases in Custer county, and touch upon the difficulties encountered in handling these cases from the standpoint of the health officer.

Measles.

Measles, probably on the average the mildest of the infectious diseases for which our state health laws prescribe quarantine, occurs with us in a very mild form, the mortality being practically nil. Quarantine has been difficult to enforce, and I beg to point out the fact that in many states quarantine for this disease is not required. As an instance of the intense communicability of rubeola I quote the following case from personal observation: In January of 1903 I was called to attend a sick child at a ranch 85 miles distant from Miles City. The weather being intensely cold I clothed myself in a buffalo coat and was ready for the trip when I was called to a house in town to see a little girl who had been ill for a few days with an eruption which at first glance showed to be measles. I had not removed my buffalo coat while making this call and proceeded on my country call without changing it. After driving in an open buggy for fourteen hours I arrived at the ranch and found a 3-year-old child ill of follicular tonsilitis. My call was a brief one and the child made an uneventful recovery from her throat affection, but after an interval of eight days following my departure the parents telephoned me that the child was covered with an eruption which proved to be a typical case of rubeola. There had been no measles in the neighborhood of this ranch anywhere, practically no communion with anyone, the ranch being very isolated, and there is no doubt in my mind that I carried infection by means of my buffalo coat, though exposed to bitter cold and wind during an 85-mile trip in an open buggy.

Scarlatina.

Scarlet fever was an unknown quantity in Custer County until '89, when an isolated case occurred in Miles City, which proved fatal. Since then sporadic cases have occurred almost every year and a few house epidemics have been observed. The cases have been usually of a severe type, attended in a large percentage of cases with the formation of false membranes on the

fauces, and the disease is so thoroughly dreaded by the community that quarantine measures have been easy to establish and maintain. I have found this disease the least contagious of our infectious diseases, having had single cases in large families, although there had been exposure to all children, both before and after the appearance of symptoms of the disease. Even the old and incomplete method of fumigation with sulphur seems to have been effective in preventing the spread of scarletina. And while this disease is comparatively rare in Eastern Montana, it is a peculiar fact that sporadic cases have, within the last few years, occurred on ranches remote from any centers of population and in which it has been impossible to discover a trace of the source of infection.

Diphtheria.

The very name of diphtheria is a household terror to the average community, and where cases of this disease have occurred in my experience quarantine measures have been readily established and every assistance to this end has been rendered by the afflicted families and their neighbors. The communicability of diphtheria has been very intense where direct contact, meaning thereby actual touch, with a person having the disease has occurred, or even an unaffected person carrying the germ has come in actual contact with children. On the other hand, where actual contact has not occurred the infective power of the germ seems not to have been so virulent as in the other forms of infectious diseases; thus, for instance, within the last few months over twenty children in a small country school in Custer county were in daily companionship with a boy who developed diphtheria and attended school with a diphtheritic membrane in his throat. He infected seven brothers and sisters in his own family, while his other school companions escaped entirely. And the virulent nature of this case was marked, the boy succumbing to the disease. I believe the tenacity of the diphtheritic germ to be intense. Sulphur fumigation proved unavailable in a case of personal observation within the last year, since subsequent cases were traced after a lapse of several months to the house where a child had succumbed to the disease and which had been thoroughly fumigated with sulphur.

Typhoid Fever.

The history of typhoid fever in Custer county is probably only a general recapitulation. Case after case can be traced to

infected wells. I have known wells for the length of six blocks on one street to be infected at one time and cases of typhoid in every block, and yet it has been very difficult to convince people of the danger of drinking unboiled superficial well water. "Our water is the finest drinking water in town and cannot possibly be impure," is a frequent assertion, and the clearness and good taste of the water is held out as proof positive. Nevertheless, the more intelligent people of the community are realizing the efforts of the health department in preventing epidemics of typhoid and I believe that this disease will, in course of time, be almost stamped out. Only a few years since ice for domestic and cooling purposes was cut indifferently from the rivers and creeks in the neighborhood. Now the ice companies confer with the health officer and make their cuttings only as directed by that officer. Filters and distilling apparatuses are found in most families, all hotels, restaurants and boarding houses confine themselves to the use of boiled water or deep artesian water, and I find this disease in our community gradually becoming limited to those wilfully defiant or careless of hygienic laws.

Smallpox.

In the latter part of December of the year just past smallpox appeared at Forsyth, Mont. At least three persons who had been exposed were allowed to come to Miles City without previous disinfection or without notification from the authorities of Rosebud county, and one of these persons developed smallpox upon his return to his ranch near Rosebud. These persons had been mingling with persons generally in Miles City and about January 10th I reported to the state health officer the presence of a case of smallpox in Custer county, and which was followed in a few days by six or seven more. A trip to Forsyth convinced me that the health authorities of Rosebud county were taking no measures to protect the neighborhoring counties, and that strict quarantine measures had not been established. After consultation with the state secretary and the Board of County Commissioners, quarantine against Rosebud county was established, which was not released until we had assurances from reliable sources that Forsyth was conforming to the state sanitary regulatons. This did not occur, however, for two weeks, and during that time passengers were allowed to leave Forsyth and journey to Billings or Glendive, and from there to Miles City, thus, in a measure at least, circumventing the quarantine estab-

lished. An epidemic of smallpox may have been imminent in Miles City, since two of the cases occurred in one of our leading hotels, and these two cases had exposed at least fifty persons to contagion. Quarantine was established and vaccination as rigidly enforced as possible and the hotel closed. Whether these measures proved effective in preventing the spread of the disease or if luck was with us, we can only conjecture; the fact remains that no further cases have since appeared.

In conclusion I beg to state that in my experience compliance with the sanitary regulations is meeting with encouragement by a large majority of intelligent citizens. Our Board of County Commissioners and our school board have worked hand in hand with the county health officer and aided in a material way the efforts to prevent the spread of infectious diseases. Anti-vaccinationists, while prevalent to a limited extent with us, is in many instances limited to the human species, since these anti-Jennerians have no hesitancy in protecting their cattle with injections of vaccine for blackleg, etc., but denying this protection to their own families. My individual efforts of enlightenment of the general public have consisted in private efforts and the promulgation of sanitary bulletins, issued in my capacity as health officer, at opportune times in the daily papers, and, I trust, have not been wholly inefficacious.

The work of the health officer, however, has not always been easy and unobstructed, much opposition and hindrance being put forth by the people whom we are endeavoring to protect. The peculiar and unique picture presents itself frequently that physicians, who earn their livelihood by treatment of disease, are exerting their best efforts towards preventing disease, thus diminishing their income and being opposed in this movement by the public, for whose benefit they are striving.

Lastly, I desire to express my thanks to our Secretary of the State Board of Health, who has assisted me in my official capacity as health officer with his active sympathy and support, and I trust that the present meeting will take steps towards establishing legislation which will clearly define the scope and work and limitations of state, county and local health boards.

Very respectfully,

L. C. BRUNING,
Custer County Health Officer.

Our Library.

In order to intelligently prosecute the work for which this board was created, it is necessary to keep well informed as to the work being done by other boards of health, and to do this we must secure the publications of other boards. We have succeeded in securing the following publications, which constitute the library of the State Board of Health of Montana. There are quite a number of books published that should constitute a portion of this library and which we hope to secure in the course of time.

Report of the State Board of Health of Michigan for 1873, 75, 77, 78, 83, 84, 86, 87, 88, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 1900 and 1901.

Report of the State Board of Health of Wisconsin for 1895-96, 97-98, 99-1900.

Report of the State Board of Health of North Carolina for 1899-1900.

Report of the State Board of Health of New Hampshire for 1900-01, 1901-02.

Report of the State Board of Health of Ohio for 1900, 1901, 1902.

Report of the State Board of Health of Louisiana for 1898-99, 1900-01.

Report of the State Board of Health of Kansas for 1899-1900, 1901-02.

Report of the State Board of Health of Massachusetts for 1901, 1902.

Report of the State Board of Health of Minnesota for 1895-1898, 1900-1903.

Report of the State Board of Health of South Carolina for 1898-1900, 1901-1902.

Report of the State Board of Health of Rhode Island for 1899, 1901, 1902.

Report of the State Board of Health of Connecticut for 1903.

Report of the State Board of Health of Maine for 1886, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 1900 and 1901.

Report of the State Board of Health of Maryland for 1898, 99, 1900, 1901.

Report of the State Board of Health of Indiana for 1901-02.

Report of the Board of Health of the Province of Quebec for 1902-03.

Report of the Department of Health of Newark, N. J., for 1903.
Report of the Department of Health of Wilmington, Del., for 1903.

Report of the Department of Health of Minneapolis, Minn., for 1903.

Report of the Department of Health of Spokane, Wash, for 1902.

Annual Report of the Surgeon General of the Public Health and Marine Hospital Service of the United States for 1903.

Year Book of the Department of Agriculture for 1902 and 1903.

Medical Education and Official Register, Illinois.

Senate Report No. 516, 1st session, 56th Congress, "Adulterations of Food Products."

Pamphlet Pertaining to the Disposal of Sewage, H. M. Bracken, M. D.

Pamphlet Pertaining to Water Supplies, H. M. Bracken, M. D.

Pamphlet Pertaining to the Prevention of Typhoid Fever, W. G. Doggett, M. D.

The Cause and Prevention of Consumptiton, Illinois State Board of Health.

The Operations of the State Board of Health of Pennsylvania in Suppressing the Epidemic of Typhoid Fever in Butler, Pa.

Sanitary Investigation of the Waters of the Illinois, Mississippi and Missouri Rivers by the Illinois State Board of Health.

Hints upon School Hygiene by the Oregon State Board of Health.

The Story of Smallpox in Oregon.

Proceedings of the 18th Annual Meeting of the Conference of State and Provincial Boards of Health of North America.

Report on the Importance of Vaccination by the Pennsylvania Board of Health.

Report of Dr. W. F. Elgin of Inspection of Vaccine Propagating Establishments in Europe.

The following periodicals are received at regular intervals:

Health in Michigan, weekly report.

Health in Michigan, monthly report.

State of Chicago's Health, weekly.

Report of Health Department of Tacoma, Wash., monthly.

Bulletin of the North Carolina State Board of Health, monthly.

United States Public Health Report, weekly.

Bulletin of Indiana State Board of Health, monthly.

Report of State Board of Health of Massachusetts, weekly.

Iowa Health Bulletin, monthly.

Vital Statistics Reported to the North Dakota State Board of Health, monthly.

Colorado State Board of Health Sanitary Bulletin, monthly.

Report of Bureau of Health of City and County of Denver, monthly.

Public Health, Pennsylvania, monthly.

Wisconsin State Board of Health Bulletin, quarterly.

Report of Commissioner of Health, Baltimore, monthly.

Bulletin of the Virginia State Board of Health, monthly.

Ohio Sanitary Bulletin, monthly.

Rhode Island Bulletin, monthly.

Heachers' Sanitary Bulletin, Michigan, monthly.

Report of the State Board of Health, California, monthly.

Report of the Board of Health of Minneapolis, monthly.

Report of the State Board of Health of Washington, monthly.

Report of the Board of Health of City of Spokane, Wash., monthly.

Connecticut Health Bulletin, monthly.

Report of Superior Board of Health of Porto Rico, monthly.

OFFICIAL LIST OF PHYSICIANS IN ACTIVE PRACTICE IN THE STATE OF MONTANA.

The names of physicians practicing in each county are given in alphabetical order, together with the following data as indicated by the numbers after each name. The first number indicating the college from which the physician graduated, the second the year of graduation, the third the date of registration in this state and the fourth the age at time of registration. The first number refers to the number of the college in the following list, the second to the date of graduation, the third to the date of registration in this state and the fourth to the age at date of registration. indicates that the data was not obtainable. "No license" indicates that no license has ever been secured from the State Board of Medical Examiners.

List of Colleges.

1. Long Island Coll. Hosp., Brooklyn, N. Y.
2. Vanderbilt Univ. M. D., Nashville, Tenn.
3. Sterling Med. Coll., Columbus, Ohio.
4. Harvard Univ. Med. School.
5. Jefferson Med. Coll., Philadelphia.
6. Med. Dept. Univ. Cincinnati.
7. Detroit Med. Coll.
8. Georgetown Univ. M. D., Washington, D. C.
9. Boston Univ. School of Med.
10. Univ. of Maryland, School of Med.
11. Victoria Coll. of Med., Ontario.
12. Bellevue Hosp. Med. Coll., New York.
13. Missouri Med. Coll., St. Louis.
14. Univ. of Buffalo, N. Y.
15. Univ. of Michigan M. D., Ann Arbor.
16. Univ. of Nashville, Tenn.
17. Univ. of Edinburgh, Scotland.
18. Univ. of Wooster M. D., Cleveland, Ohio.
19. Bishops Coll., Montreal.
20. Bowdoin Med. Coll., Brunswick, Me.
21. Univ. of Pennsylvania, Philadelphia.
22. Univ. of Chicago M. D. (Rush).
23. Willamette Univ. M. D., Salem, Ore.
24. Toledo Med. Coll.
25. N. W. Univ., Chicago (Chicago Med. Coll.)

26. Cooper Med. Coll., San Francisco.
27. Kentucky Hosp. Coll. Med., Louisville, Ky.
28. St. Louis Med. Coll.
29. Leipsic.
30. New Orleans Univ. M. D.
31. Trinity Med. Coll., Toronto.
32. Johns Hopkins Univ. M. D.
33. Columbus Med. Coll., Ohio.
34. National Univ. M. D., Washington, D. C.
35. Univ. Alabama, M. D.
36. Ohio Med. Univ., Columbus.
38. Albany Med. Coll.
39. Iowa State Univ., Iowa City.
41. N. Y. Univ. M. D., New York City.
42. Univ. of Illinois M. D. (P. & S. Chicago).
43. Univ. Louisville M. D.
44. Univ. Vermont M. D.
45. Keokuk Med. Coll., Iowa.
47. Hahneman Med. Coll., Chicago.
49. Univ. Minn., Med. Dept., Minneapolis.
51. Coll. P. & S., Minneapolis.
52. N. Y. Homeo. Med. Coll. and Hosp., New York City.
53. Columbia Univ., Washington, D. C.
54. Univ. California M. D., San Francisco.
55. Indiana Eclectic Med. Coll.
57. Magill Univ. M. D., Montreal.
58. Coll. P. & S., Baltimore.
59. Am. Med. Missionary Coll., Chicago.
60. Minn. Hospt. Med. Coll., Minneapolis.
61. Hahnemann Med. Coll., Philadelphia.
62. K. C. Univ., Hahnemann Med. Coll., Kansas City, Mo.
63. Western Univ. M. D., London, Ont.
64. Toronto Univ. Med. Faculty.
65. Univ. Turin.
66. St. Paul Med. Coll., St. Paul.
68. Chicago Homeo. Med. School.
69. Coll. P. & S., New York.
70. Queens Coll. P. & S., Kingston, Ont.
71. Imperial Alexandria Univ., Finland.
72. Ft. Wayne Med. Coll.
74. Med. School of Maine, Brunswick, Me.

75. N. W. Univ. Woman's Med. School, Chicago.
76. Homeo. Hosp. Coll., Cleveland, Ohio.
78. Univ. Vienna.
79. Atlanta Med. Coll.
80. Coll. P. & S., St. Louis.
81. Beaumont Hosp. Med. Coll., St. Louis.
82. National Med. Coll., Chicago.
83. Halifax Med. Coll., Halifax, Nova Scotia.
86. Creighton Med. Coll., Omaha, Neb.
87. Marion Sims, Beaumont Coll. Med., St. Louis.
88. Univ. Virginia.
89. Kentucky School of Med.
90. Manitoba Med. Coll., Winnipeg.
91. M. D. Univ., Cincinnati.
92. Coll. P. & S., Keokuk.
93. Dalhousie Univ. Med. Faculty, Halifax.
95. Queens College, Cork, Ireland.
97. Kansas City Med. Coll.
98. Univ. So. Calif. Coll. Med.
99. Coll. P. & S., Kansas City, Mo.
100. Univ. Med. Coll., Kansas City.
104. Washington Univ. M. D., St. Louis.
105. Dunham Med Coll., Chicago.
108. Laval Univ., Canada.
107. Baltimore Univ. School of Med.
109. Wisconsin Coll. P. & S.

BEAVERHEAD COUNTY.

H. A. Bond	45	89	91	33....Dillon.
L. C. Ford	45	76	89	37....Lima.
J. L. Jones .....	..	..	89	.....Dillon.
W. V. Kinsbury	28	97	01	35....Dillon.
J. A. McNevin	No license			....Wisdom.
G. B. Owens	49	00	00	23....Wisdom.
F. M. Poindexter	25	00	03	28....Dillon.
R. H. Ryburn.....	97	96	98	26....Bannock.
G. N. Towers	No license			....Wisdom.

BROADWATER COUNTY.

J. L. Belcher	28	71	89	41....Townsend.
G. W. Gilham	54	81	90	30....Townsend.
J. P. Ritchey	22	03	90	30....Townsend.
E. A. Sweet	68	01	02	25....Townsend.

CARBON COUNTY.

W. H. Allen	14	80	89	32....Joliet.
L. R. Booth	No license			....Gebu.
L. A. Gates	92	98	00	.....Bridger.
J. H. Johnson	41	79	92	41....Bridger.
B. B. Kelley	22	70	94	48....Red Lodge.
E. T. Lutz	62	96	98	26....Red Lodge.
S. A. Souders	36	00	01	28....Red Lodge.
Frank Swallow	No license			
J. B. Makkyla	71	94	04	.....Red Lodge.

CASCADE COUNTY.

F. J. Adams	8	81	89	.....Great Falls.
T. B. Anthony	57	02	03	23....Sand Coule.
X. L. Anthony	57	95	96	25....Stockett.
C. A. Brady	11	89	91	26....Great Falls.
A. E. Chamberlain	76	91	93	32....Belt.
Ernest Crutcher	2	79	89	31....Great Falls.
F. E. Donaldson	82	99	99	24....Great Falls.
J. H. Fairfield	21	80	89	33....Great Falls.
Gowan Ferguson	64	88	91	24....Great Falls.
Richard Foster	No license			....Neihart.
J. W. Frizzell	68	84	91	37....Great Falls.
W. H. Gelsthorp	18	85	89	28....Great Falls.
F. N. Flynn	80	95	04	43....Zortman.
R. P. R. Gordon	17	86	89	28....Great Falls.
R. C. Hill	91	92	98	32....Great Falls.
J. H. Irwin.....	22	99	01	25....Great Falls.
A. G. Ladd	58	78	89	.....Great Falls.
A. F. Longeway	19	86	89	24....Great Falls.
J. W. McCready	72	98	98	34....Cascade.
D. A. McLennen	57	97	98	32....Cascade.
W. F. Patterson	57	00	01	25....Belt.
H. C. Roberts	75	88	94	32....Great Falls.
W. T. Scott	57	97	97	.....Great Falls.
LeRoy Southmayd	15	92	92	23....Great Falls.
Earl Strain	21	90	92	25....Great Falls.
J. A. Sweat	20	80	89	34....Great Falls.
C. T. Sweeney	97	91	99	30....Great Falls.
C. E. K. Vidal	19	90	91	22....Belt.

CHOUTEAU COUNTY.

J. S. Almas	64	91	92	29....Havre.
F. B. Atkisson	43	62	89	46....Fort Benton.
J. V. Carroll	41	86	89	35....Fort Benton.
C. D. Crutcher	16	86	89	29....Fort Benton.
Jno. Dunlap	107	99	02	46....Gold Butte.
C. F. Hopkins	58	82	91	31....Chinook.
D. S. McKenzie	22	01	01	22....Havre.
P. H. O'Maley	22	01	03	29....Chinook.
A. P. Rooney	25	02	03	33....Harlem.
J. D. Smoot	87	98	02	27....Havre.
A. E. Williams	49	00	03	31....Havre.
C. L. Woods	72	94	03	44....Harlem.

CUSTER COUNTY.

W. W. Andrus	31	93	93	34....Miles City.
L. C. Bruning	43	95	97	28....Miles City.
F. S. Grey	1	94	96	29....Miles City.
P. F. Metz	No license			....Miles City.

DAWSON COUNTY.

D. J. Donohue	47	99	00	26....Glendive.
R. E. Hathaway	42	02	03	28....Glendive.
J. H. Hunt	15	90	91	28....Glendive.
J. C. F. Seigfriedt	42	02	03	25....Wibaux.

DEER LODGE COUNTY.

E. C. Anderson	49	97	02	29....Anaconda.
W. H. English	55	91	91	32....Anaconda.
O. C. Evans	68	93	94	24....Anaconda.
M. Feenan	31	99	00	....Anaconda.
M. M. Leahy	5	64	97	....Anaconda.
S. J. Leahy	75	95	97	....Anaconda.
T. J. McKenzie	43	89	89	27....Anaconda.
I. M. Rockafeller	5	67	89	....Anaconda.
F. L. St. Jean	11	89	92	28....Anaconda.
J. M. Sleigh	7	80	89	45....Anaconda.
J. E. Spelman	21	90	92	27....Anaconda.
H. W. Stephens .....	..	..	89	....Anaconda.
J. M. Scanland	47	84	03	44....Warm Springs.
R. L. Stokes	No license			....Warm Springs.
O. Y. Warren	58	85	91	30....Warm Springs.

FERGUS COUNTY.

J. B. Atchison	1	67	89	46....Lewistown.
F. F. Attix	21	00	01	27....Lewistown.
H. J. Betten	22	00	03	31....Garnell.
O. F. David	22	90	93	31....Utica.
L. B. W. Brain	No license			....Gardiner.
J. T. Foley	No license			....Lewistown.
—, —, Hill	No license			....Garnell.
W. J. Lakey	15	00	02	26....Gilt Edge.
W. A. Long	26	82	89	43....Lewistown.
Gaylord McCoy	98	99	00	30....Kendall.
T. H. Pleasants	88	77	89	....Lewistown.
S. S. Owens	99	04	04	35....Moore.
A. Poska	22	99	02	24....Utica.
E. H. Stoll	47	00	02	25....Lewistown.

C. R. Symmes	70	03	04	.....Lewistown.
J. H. Willard	36	69	89	43....Lewistown.
H. H. Wilson	39	67	98	52....Lewistown.
H. K. Wilson	25	04	04	.....Lewistown.

FLATHEAD COUNTY.

F. L. Albritten	24	98	99	.....Kalispell.
F. B. Borgardus	68	01	03	24....Somers.
M. W. Bottorf	47	95	96	25....Kalispell.
P. A. Bottorf	47	94	97	.....Kalispell.
W. H. Campbell	5	90	90	42....Kalispell.
B. F. Consler	31	03	04	.....Whitefish.
A. R. Duncan	21	82	89	37....Kalispell.
H. E. Houston	51	00	01	28....Kalispell.
A. J. Lamb	57	99	00	26....Kalispell.
A. J. Lees	22	01	02	26....Hayden.
A. D. McDonald	57	87	92	30....Kalispell.
A. Morrow	17	86	93	29....Kalispell.
A. M. Morrow	5	83	94	34....Kalispell.
A. T. Monroe	49	7	02	27....Kalispell.
J. T. Robinson	31	93	97	27....Columbia Falls.
W. B. Shore	100	03	04	.....Witefis h.
B. E. Wiley	57	01	02	26....Kalispell.

GALLATIN COUNTY.

J. F. Blair	44	92	01	32....Bozeman.
C. B. Boyle	53	91	98	34....Bozeman.
R. M. Francis	No license			....Bozeman.
H. N. Gragg	6	89	90	35....Bozeman.
—, —, Graybill	No license			....Belgrade.
G. L. Hogan	38	87	80	.....Bozeman.
C. W. Jump	15	02	03	27....Bozeman.
C. E. McCoy	16	95	99	27....Belgrade.
Jos. Piedaleu	11	85	89	30....Bozeman.
D. H. Patterson	47	91	91	26....Bozeman.
J. D. Ragsdale	87	96	02	33....Bozeman.
G. M. Russel	92	98	03	32....Manhattan.
L. E. Safley	42	85	92	31....Bozeman.
E. H. Saunders	57	95	03	31....Chestnut.
John Waters	5	68	89	.....Bozeman.
R. M. Whitefoot	8	66	89	49....Bozeman.

GRANITE COUNTY.

G. D. Cravin	45	99	97	.....Drummond.
A. N. Chamberlain	22	99	99	24....Drummond.
E. F. Conyngham	49	87	90	.....Philipsburg.
W. W. Hale	15	04	04	.....Granite.
E. B. Patterson	15	86	03	44....Granite.
W. I. Power	79	89	90	24....Philipsburg.
Wm. Ray	13	68	89	46....Philipsburg.

JEFFERSON COUNTY.

W. E. Casey	No license			....Pipestone Springs.
C. E. Denbow	No license			....Boulder.
LeRoy Dobyns	3	68	94	51....Whitehall.
I. A. Leighton	15	85	89	32....Boulder.
L. R. Packard	25	89	02	25....Whitehall.

D. E. Rainville	10	90	93	28....Basin.
A. F. Rudd	23	57	89	.....Jefferson City.
A. L. Ward	49	00	01	28....Boulder.

LEWIS AND CLARKE COUNTY.

M. B. Atwater	75	87	93	33....Helena.
F. N. Chessman	69	04	04	.....Helena.
G. H. Barbour	6	86	89	28....Helena.
E. I. Bradley	42	94	99	30....Helena.
B. C. Brooke	12	96	96	.....Helena.
M. M. Dean	9	83	89	31....Helena.
J. H. Dent	15	92	97	36....E. Helena.
A. C. Dogge	12	93	93	23....Helena.
A. C. Fleming.....	39	81	89	30....Augusta.
L. H. Fligman	49	01	02	24....Helena.
James Gray	57	83	95	41....Helena.
K. Q. Holden	15	89	89	34....Helena.
L. E. Holmes	12	66	89	48....Helena.
R. Horsky	21	95	95	24....Helena.
A. Jordan	39	95	96	26....Marysville.
E. S. Kellogg	61	87	91	41....Helena.
G. W. King	15	77	89	.....Helena.
O. M. Landstrum	42	94	96	26....Marysville.
C. B. Miller	6	81	89	47....Helena.
C. A. Perrin	15	81	89	36....Helena.
W. C. Riddell	15	86	90	26....Helena.
N. J. Salvail	11	83	89	29....Helena.
Chas. Thompson	61	89	89	.....Helena.
Wm. Treacy	22	77	89	34....Helena.
T. D. Tuttle	69	92	98	29....Helena.

MADISON COUNTY.

A. M. Dwight.....	22	96	98	.....Rochester.
F. J. Fair	27	97	01	29....Norris.
G. H. Kennett	22	02	04	.....Virginia City.
J. J. Mahoney	81	01	01	29....Virginia City.
T. B. Marquis	62	98	98	28....Ennis.
G. W. Rightenour .....	..	..	89	.....Sheridan.
J. Sheerhan	44	94	94	26....Twin Bridges.
H. F. Smith	54	94	95	30....Pony.
J. S. Stafford .....	..	..	89	.....Pony.
E. L. Sutherland	19	99	00	27....Sheridan.
R. A. White	15	99	00	28....Virginia City.
E. M. Wilson	86	95	97	.....Twin Bridges.

MEAGHER COUNTY.

J. M. Kumpe.....	35	73	89	38....White Sul. Springs
D. McH. McKay	45	79	89	46....White Sul. Springs
D. McH. McKay, Jr.	87	97	98	.....White Sul. Springs
H. B. Tice	12	39	00	24....Two Dot.

MISSOULA COUNTY.

J. T. Brown	22	89	02	37....Missoula.
J. J. Buckley	68	78	89	.....Missoula.
E. A. Crain .....	..	..	89	.....Missoula.
H. B. Farnsworth	59	00	04	28....Missoula.
T. A. Fitzgerald	31	88	92	24....Missoula.
W. A. Glasgow	105	01	01	23....Missoula.

R. Gwinn	12	84	89	26....Missoula.
F. C. Lawyer	5	73	92	37....Missoula.
M. W. Libcher	5	74	89	45....Plains.
Ida W. Healey	No license			....Missoula.
P. A. LoTournean	108	84	03	43....Frenchtown.
G. P. McCollough	12	89	90	31....Missoula.
S. A. McCall	109	00	03	39....Missoula.
W. P. Mills	12	79	89	22....Missoula.
S. W. Minshall	60	86	91	31....Missoula.
G. W. Monroe	30	59	89	52....Plains.
W. B. Parsons	12	70	91	40....Missoula.
W. A. Peek	47	98	03	31....Thompson.
E. D. Peek	2	93	03	35....Thompson.
Chas. Pixley	22	01	01	32....Missoula.
G. W. Putney	15	97	98	25....Missoula.
H. C. Smith	12	94	04	....Missoula.
E. W. Spottswood	49	95	95	29....Missoula.
A. Tremblay	11	69	89	42....Missoula.
C. F. Watkins	15	01	03	31....Missoula.

PARK COUNTY.

R. D. Alton	18	82	89	46....Livingston.
J. W. Beeson	22	02	03	30....Livingston.
W. F. Cogswell	83	94	96	27....Livingston.
J. B. Freund	15	00	00	26....Hunters Hot Spgs.
S. E. Leard	86	93	96	31....Livingston.
A. D. Murray	69	90	92	26....Cokedale.
B. L. Pampel	86	98	99	26....Livingston.
W. P. Reynolds	83	00	00	29....Aldridge.
W. B. Reynolds	93	00	00	23....Aldridge.

POWELL COUNTY.

C. S. Cranson	47	85	89	45....Elliston.
W. G. Dye	25	01	03	30....Deer Lodge.
C. G. Glass .....	..	..	89	....Deer Lodge.
J. H. Owings	10	61	89	46....Deer Lodge.

RAVALLI COUNTY.

H. F. Brethour	64	99	01	26....Hamilton.
J. T. Brice	79	89	95	29....Stevensville.
E. A. Brooke	10	87	89	....Stevensville.
F. E. Buchen	2	99	03	45....Hamilton.
J. T. Coughenour .....	..	..	89	....Corvallis.
J. W. Howard	23	73	89	47....Hamilton.
K. H. Kellogg	7	04	04	....Stevensville.
Geo. McGrath	70	93	83	27....Hamilton.
P. S. Rennick	89	04	04	....Victor.

SWEET GRASS COUNTY.

J. G. McKay.....	57	99	99	23....Big Timber.
J. H. Moore	15	86	92	33....Big Timber.
W. A. Moore	7	85	89	28....Big Timber.
J. G. Valdhuis	7	98	98	26....Big Timber.

ROSEBUD COUNTY.

D. N. Reber	12	89	92	33....Forsyth.
A. C. Wilson	70	91	82	32....Forsyth.

SILVER BOW COUNTY.

J. N. Alexander	5	94	96	.....Butte.
A. G. Allen	21	78	89	.....Butte.
L. R. Bernheim	78	94	94	29....Butte.
G. E. Blackburn .....	..	79	91	51....Butte.
G. D. Bryant	36	94	95	27....Butte.
G. A. Cahoon	49	97	98	.....Butte.
E. G. Campana	42	04	04	.....Butte.
Donald Campbell	44	91	92	28....Butte.
A. W. Corner	104	01	01	30....Butte.
I. Donnelly	5	83	99	42....Butte.
J. A. Donovan	15	94	99	27....Butte.
R. D. Evans	10	86	91	35....Butte.
I. D. Freund	15	72	89	46....Butte.
R. S. Freund	15	99	99	27....Butte.
F. Gattan	47	96	96	.....Butte.
J. W. Gunn	26	84	89	33....Butte.
T. A. Grigg	21	87	93	29....Butte.
J. S. Hammond	26	73	89	45....Butte.
H. H. Hanson	33	81	89	32....Butte.
H. M. Hall	25	83	93	.....Butte.
T. J. Heine	60	88	92	26....Butte.
O. C. Hull	No license			....Butte.
C. H. Horst	32	03	03	26....Butte.
W. Haviland	52	88	90	26....Butte.
J. C. Johnson	5	75	89	38....Butte.
W. P. Kelly .....	..	..	89	.....Butte.
C. L. Larson	42	02	02	30....Butte.
E. D. Leavitt	4	70	89	.....Butte.
J. G. Lobb	22	97	98	.....Butte.
A. H. Lilly	4	02	03	23....Butte.
F. W. McCrimmon	63	91	91	21....Butte.
A. J. McDonald	57	85	91	30....Butte.
N. McGarvin	11	56	90	60....Butte.
Jno. McIntire	19	98	99	37....Butte.
M. G. McNevin	15	91	03	47....Butte.
J. A. McNevin	15	91	03	47....Butte.
P. H. McCarthy	86	02	02	27....Butte.
A. Martinalls	65	00	03	28....Butte.
T. J. Murray	5	79	89	.....Butte.
R. C. Monahan	42	00	01	27....Butte.
T. B. Moore	17	93	96	25....Butte.
M. E. Marlow	No license			....Butte.
L. F. Mollene	11	90	98	34....Melrose.
C. V. Narcross	39	87	91	26....Butte.
C. T. Pigot	63	00	02	23....Butte.
W. L. Renick	43	92	96	27....Butte.
S. E. Schwartz	69	96	98	23....Butte.
J. B. Sullivan	80	03	03	24....Butte.
T. J. Sullivan	92	87	99	40....Butte.
J. R. E. Sievers	25	93	98	.....Butte.
M. C. Smitters	22	00	00	23....Butte.
P. J. Sheeran	44	94	95	26....Butte.
J. . Schapps	12	80	93	40....Butte.
G. F. Tidyman	25	00	02	30....Butte.
H. H. Townshend	86	96	97Melrose.

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E. W. Trainor	89	02	02	22....Butte.
C. Turner	95	97	99	35....Butte.
G. H. Wells	66	88	91	28....Butte.
T. E. Wetzell	No license			....Butte.
Jos. Weyerhorst .....	..	..	89	....Butte.
O. B. Whitford .....	..	..	89	....Butte.
H. Westphal	69	98	04	34....Butte.
M. A. Walker	98	89	99	31....Butte.

TETON COUNTY.

T. Brooks	62	92	96	....Choteau.
F. L. J. Canney .....	..	..	89	....Conrad.
T. L. Clark	89	94	97	....Shelby.
F. A. Long	97	02	02	29....Choteau.
G. S. Martin	Indian Agency			....Browning.
H. W. Power	25	03	03	25....Conrad.
S. B. Stone	34	79	89	34....Dupuyer.
W. W. Taylor	49	00	01	28....Conrad.

VALLEY COUNTY.

J. L. Atkinson	Indian Agency			....Poplar.
G. W. Clay	63	99	99	27....Malta.
R. W. Getty	21	91	93	25....Glasgow.
M. D. Hoyt	21	91	92	28....Glasgow.
W. M. Memminger	99	88	00	34....Hinsdale.
C. A. Tillottson	41	91	91	24....Culbertson.

YELLOWSTONE COUNTY.

E. C. Anderson	49	97	02	29....Columbus.
H. E. Armstrong	31	94	98	30....Billings.
P. Baxter	12	92	92	26....Billings.
J. Craig	74	76	92	41....Columbus.
F. E. Corwin	No license			....Park City.
A. Clark	7	93	98	34....Billings.
H. T. Clark	90	92	98	36....Billings.
Jas. Chapple	31	00	00	30....Billings.
J. W. Free	58	82	91	30....Billings.
E. A. Gerhart	No license			....Billings.
C. Lindsay	22	92	93	27....Billings.
L. M. Line	58	84	89	....Columbus.
J. H. Rinehart	3	84	89	....Billings.
W. M. Safley	42	85	93	26....Park City.
W. L. Seaman	25	95	03	31....Billings.
C. Shulin	29	73	89	39....Billings.

PART II.

Part II.

SPOTTED FEVER.

The work of investigating into the cause and nature of the disease known as "Spotted Fever" has been in the hands of the U. S. Public Health and Marine Hospital Service, and two most efficient men have been in the field. These men have made thorough investigations along different lines and we regret that the conclusions reached by them are so different. However, it only serves to demonstrate the fact that the most scientific investigation of a new disease requires time and it is not uncommon for early investigators to reach radically different conclusions.

During the season of 1903 Dr. Anderson was in the field and his complete report follows. We regret that we are unable to publish the plates used to demonstrate his work, but those who are sufficiently interested can secure the report in full, including plates, etc., by applying to the U. S. Public Health and Marine Hospital Service, Washington, D. C., for "Hygienic Laboratory Bulletin, No. 14."

During the season of 1904 Dr. Styles was in the field and, as his complete report has not been made, we publish his preliminary report, which gives, in a condensed form, the conclusions reached by him.

SPOTTED FEVER (TICK FEVER) OF THE ROCKY MOUNTAINS; A NEW DISEASE.

By John F. Anderson,

Passed Assistant Surgeon and Assistant Director Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

Introduction.

In obedience to instructions of April 22, 1903, to proceed to Montana to investigate the so-called spotted fever which has prevailed at times in the Bitter Root Valley, I left Washington April 24.

I first visited Great Falls, Mont., for the purpose of conferring with Dr. A. F. Longeway, secretary of the Montana State Board of Health; from there I went to Missoula, situated at the foot of the Bitter Root Valley, and made that place my headquarters. The Montana State University very courteously offered me the use of its laboratory. Dr. J. J. Buckley, chief surgeon of the Northern Pacific railroad, also offered me the use of his laboratory, which was accepted.

As is shown in the report, the disease is not confined to the Bitter Root Valley, but exists in Nevada and Idaho; and since writing my report I have been informed of cases in Wyoming.

The good results that have followed the administration of large doses of quinine—the five cases in which it was used having recovered—give much hope that this disease, which is so much dreaded, may in the future be robbed of many of its terrors.

I have suggested as a name for the disease "Tick Fever," as there are already two diseases sometimes called "spotted fever."

I desire to express to Dr. J. J. Buckley, of Missoula, for the use of his laboratory, and to the physicians of Missoula and the Bitter Root Valley, my sincerest thanks for their kind assistance in my investigation of the disease and for many personal courtesies; also to Dr. L. B. Wilson, of the University of Minnesota, for help and data in regard to the disease.

To Surgeon General Walter Wyman I am much indebted for the detail and resulting opportunity to study this new and most interesting disease.

1. **Geographical Distribution**—Montana—The disease has been known in the valley of the Bitter Root River in Western Montana for about twenty years. It is sharply localized on the west

bank of the Bitter Root River, no cases having been known to occur in persons on the east side of the river who had not a short time previously visited the west side. The infected locality extends from Loo Loo to Como, a distance of about 50 miles. Certain places in the valley seem to be more heavily infected than others. Nine cases have also occurred in the canyon of Rock Creek, about 10 miles south of Bonito and 20 miles east of the Bitter Root.

This year information was obtained from Dr. L. A. Gates, of Bridger, Mont., about 400 miles east of the Bitter Root, of the prevalence of the disease in that locality. A report of two cases described by him will be seen in the appendix.

Idaho—The disease has also been known clinically in Idaho for many years, the first published description having been made by Dr. E. E. Maxey, in the *Portland Medical Sentinel* for October, 1899 (1). An unpublished symposium on the disease by various Idaho physicians was made by Major M. W. Wood, U. S. Army, 1898, to the Surgeon-General of the Army. In Idaho the disease prevails throughout almost the entire valley of the Snake River, its tributaries, and the foothills of the neighboring mountains.

Nevada—I am informed by Major W. R. Kendall, U. S. Army, that the disease also prevails in the valley of the Quinn River in Northern Nevada.

Wyoming—Cases have been reported this spring at Cody and Meeteetse.

Oregon—The mild form of the disease has been reported in Eastern Oregon.

2. **Climate**—The disease does not prevail south of 40 degrees or north of 47 degrees. It prevails at an average elevation of about 3,000 to 4,000 feet above sea level.

3. **Season**—The disease prevails exclusively in the spring and early summer. In the Bitter Root cases the earliest was March 17 and the latest July 20.

4. **Occupation**—All occupations that cause the person to be exposed to the bite of ticks, such as stockmen, and especially sheep herders, miners, prospectors, lumbermen, ranchmen, and those whose duties take them into the brush, are subject to the disease.

5. **Age**—Persons from 15 to 50 years of age more often con-

tract the disease, as during that period they are more actively engaged in outdoor work. The youngest case was 18 months and the eldest 74 years old.

6. Sex—In 121 cases, 76 were males and 45 females, the difference being probably due to the greater liability to exposure of men on account of occupation.

7. The Parasite—In the spring of 1902 Dr. A. F. Longeway, secretary of the Montana State Board of Health, engaged the services of Drs. L. B. Wilson and W. M. Chowning, of the University of Minnesota, to investigate the "spotted (tick) fever" then prevailing in the Bitter Root Valley. These gentlemen published the results of their work in the *Journal of the American Medical Association* July 19, 1902, and in the report of the Montana State Board of Health for 1901-2.

Surgeon-General Wyman, of the Marine Hospital Service, detailed Surgeon J. O. Cobb to also investigate the disease, and his report was published in the *Public Health Reports*, volume 17, No. 33, August 15, 1902.

The same year Dr. F. F. Westbrook, of the University of Minnesota, visited Missoula and confirmed the findings of Drs. Wilson and Chowning. His report will be found in the biennial report of the Minnesota State Board of Health for 1901-2.

Wilson and Chowning noticed ovoid intracorpuseular bodies in stained preparations of the blood from their earlier cases. They did not determine the character or significance of these bodies until they examined the fresh blood of case No. 94, when they found ovoid intracorpuseular bodies showing amoeboid movements. These observations they confirmed in all the later cases which they examined. To Wilson and Chowning, then, belongs the credit of discovering a parasite which is very probably the cause of spotted (tick) fever.

Parasites in the red-blood cells are rather common in the animal kingdom. The two which I desire to mention especially are those of malaria and of Texas cattle fever. The parasite found in the red-blood corpuscles of persons suffering from spotted fever apparently lies between these two. Unlike most malarial parasites, it is not pigmented, but, like them, it shows amoeboid movements, thus differing from the *Pyrosoma bigeminum*, which is nonpigmented and without motion. Again, one form of the parasite found in spotted fever is arranged in pairs in the

red-blood cells, closely resembling the double form of *Pyrosoma bigeminum*.

In my studies upon the cause of spotted (tick) fever I had the opportunity of examining the blood, both fresh and stained, in a number of cases. Two cases were in hospital at Missoula, and daily examinations were made. In the fresh blood a few cells were found to contain parasites. Three forms were seen. The most common was a single ovoid body, refractile, situated within the cell, usually near its edge. When the slide is warmed this body possesses the power of projecting quite rapidly pseudopodia and a slight change of position. This form, which is apparently an early or young form, is about 1.5 to 2 micra in length, and 0.5 to 1 micron in width at its widest part. It closely resembles the earliest introcorpuscular parasites of aestivo-autumnal malaria. (See Pl. II, figs. 4, 5.)

Another form, not so common, was larger, being about 2 to 2.5 by 1 to 1.5 micra, larger at one end and showing in the larger end a dark granular spot; this was also amoeboid. (See Pl. II, fig. 6.)

The third form noted was arranged in pairs, distinctly pyriform, with the smaller end approaching, and in two cases a fine thread uniting the small ends was seen. Motion was not observed in this form, but the spot mentioned in the second form was seen. (See Pl. II, fig. 9.)

Great difficulty was experienced in staining the organism. A number of stains were used, but the most satisfactory results were obtained by the use of Wright's stain, followed by Loeffler's blue. Carbolized Unna's polychrome methylene blue also gave fair results, heat fixation at 120 deg. C. for twenty minutes being used. I was unable to find the paired forms in stained preparations, though Drs. Wilson and Chowning informed me that they had no difficulty in doing so. By a reference to Pl. I, figs. 1 and 2, it will be seen that the parasite takes the stain more deeply at one end and is only faintly outlined in its periphery. Sometimes it has only a central stained spot surrounded by a clear unstained space. (See Pl. I, fig. 3.)

The parasites are never found in very large numbers, it being usually necessary to search several fields of the slide to find one. Sometimes they occur in groups, two or three infected cells being found in one field. In both fresh and stained preparations

extracorpuseular bodies closely resembling the small single intracorpuseular form were seen. I was unable to definitely decide the character of these bodies, but am strongly inclined to think that they are the young form of the parasite which has not yet invaded the red cells.

I had the opportunity to examine the fresh and stained blood from cases in the Bitter Root Valley of smallpox, typhoid fever, measles, scarlet fever, rheumatic fever, pneumonia, pernicious anaemia, some surgical cases, and from healthy persons, but did not note in any of them any bodies, either intra or extra corpuseular, resembling in any way the bodies above described as being found in the fresh and stained blood of persons suffering from spotted (tick) fever.

In the cases of spotted (tick) fever which I had the opportunity of examining I had no great difficulty in finding both in fresh and stained preparations the bodies above described. Their constancy in the blood of persons suffering with spotted fever, their persistency for some time in the blood of these persons after recovery, their absence from the blood of persons suffering from other diseases and of healthy persons makes it very probable that they are the cause of the disease, and that one more has been added to the rapidly growing list of diseases of man due to animal parasites.

Cultures were made by Wilson and Chowning and by myself from the blood of patients during life and from the organs and tissues at autopsy, and the only bacterial growth obtained was *Staphylococcus epidermidis albus*, *Staphylococcus pyogenes aureus* and *albus*, *Bacillus coli*, and in one case an anaerobic spore-bearing organism was obtained from the spleen. No one organism was constant, and from some cases no growth at all was obtained.

In the table which follows is gathered a complete collection of all the cases which have been reported by the physicians of Western Montana since 1885, when the disease first attracted attention. Cases 1 to 114 were compiled by Wilson and Chowning and the remaining cases by myself.

TABLE SHOWING CASES OF SPOTTED (TICK) FEVER

Case No.	Physicians name and address	Year...	Date of onset of symptoms	Patient's initials	Sex	Age...	Occupation
1	J. F. Coughenour, Corvallis	1885	June 25	J. M.	Male.....	36	Prospector ...
2	...do	1886	May 3	H. T. ....	..do.....	30	Lumberman ..
3	...do	1888	May 7	Mrs. W.	Female...	37	Housekeeper .
4	R. Gwinn, Missoula	1888	Spring..	F.	Male.....	35	.....
5	...do	1888	..do.....	.....	..do.....	25	Laborer
6	...do	1889	..do.....	Half-breed ..	..do.....	20	.....
7	...do	1889	..do.....	.....	Female...	6	.....
8	...do	1889	..do.....	.....	Male.....	12	.....
9	J. F. Coughenour, Corvallis	1890	June 22	W. J. ....	..do.....	30	Laborer
10	...do	1891	June 17	D. S. ....	..do.....	40	Farmer
11	E. A. Crain, Missoula.....	1891	.....	L. D.	Female...	*17	Farmers daughter ...
12	W. B. Parsons, Missoula ..	1891	May ..	Z. H.	Male.....	35	Hotel
13	...do	1891	May 20	F. C. ....	..do.....	48	Trapper
14	...do	1891	May 26	C. M. ....	..do.....	51	...do.....
15	...do	1891	July 20	L. P. ....	..do.....	10	.....
16	J. F. Coughenour, Corvallis	1892	Apr. 27	Mrs. J. C....	Female...	26	Housekeeper .
17	...do	1892	June 2	Mrs. C's babe	Male.....	2d	.....
18	E. A. Crain, Missoula .....	.....	.....	Name forgotten	..do.....	*30	Laborer
19	...do .....	.....	.....	Mrs. M. G....	Female...	*28	Housewife ...
20	Geo. McGrah, Hamilton ...	1893	June ..	.....	Male.....	*11	.....
21	...do	1893	May ..	.....	..do.....	*40	Laborer
22	J. T. Brice, Stevensville....	1895	..do.....	O. O. ....	..do.....	45	Farmer
23	...do	1895	..do.....	Mrs. A. A. ..	Female...	40	Housewife ...
24	Geo. McGrath, Hamilton ..	1895	..do.....	.....	Male.....	*8	.....
25	J. T. Brice, Stevensville....	1896	..do.....	J. S. ....	..do.....	44	.....
26	J. J. Buckley, Missoula	1896	June ..	.....	..do.....	26	Lumberman ..
27	G. T. McCullough Missoula	1896	May 1	Ed. W. ....	..do.....	26	Ranchman ...
28	W. B. Parsons, Missoula..	1896	May ..	G. B. ....	..do.....	32	Trapper
29	...do	1896	..do.....	F. L.	Female...	18	.....
30	...do	1896	..do.....	- P.	Male.....	...	.....
31	J. T. Brice, Stevensville....	1897	..do.....	J. F. W. ....	..do.....	60	Farmer
32	...do	1897	..do.....	J. N. ....	..do.....	*60	...do.....
33	...do	1897	Apr. ..	R. C. ....	..do.....	21	...do.....
34	...do	1897	June ..	Mrs. C. M....	Female...	40	Housewife ...
35	J. J. Buckley, Missoula....	1897	Spring..	.....	Male.....	30	Lumberman ..
36	...do	1897	..do.....	J. H. ....	..do.....	27	Farmer

* About.

REPORTED BY PHYSICIANS OF WESTERN MONTANA.

About what day of illness d d spots appear	Death on what day of dis- ease, convalescence be- ginning about what day	Remarks
Fifth	Died eleventh day	Made 3 visits—July 2, 3, 4, 1885. Spots pres- ent at my first visit. Diagnosed case "typhoid fever."
Fourth .....	.....do.....
Sixth	Beginnig of lysis on fifteenth day	
Third	Died sixth day	
Third or fourth	Convalesced eight- centh day	
Third	Died fifth day	This case occurred in a year when there were many deaths from spotted fever from Carlton to Corvallis. It was then called by the valley physimians "black measles."
.....do.....	Died seventh day	
.....do.....	.....do.....
Fifth	Died eleventh day	
Fourth	Died tenth day	
No record	Recovered ..	This man lived in Stevensville. A short time before he was taken sick he was on the west side of the river and slept out in the mountains.
Third	Died sixth day	
.....do.....	Died seventh day	
.....do.....	Died sixth day	
.....do.....	2 or 3 weeks	
.....do.....	Died eighth day	Mrs. C. had been delivered of male babe 4 days before her death. Early in the sec- ond morning after birth the babe's grandmother called my attention to the child's fever and jaundiced appearance. Had but few spots; began to get better on ninth or tenth day of his sickness.
Had but little eruption	Began to get better on 9th or 10th day...	
No record	Recovered	
.....do.....	.....do.....
Third	Died about 13th day...	
.....do.....	Died twelfth day	I can give no good account of them. The man, as near as I can remember, was under my care for about 3 weeks, then went to his relations at Wausau, Wis. The case of the female was slight.
.....do.....	Died eighth day	
.....do.....	Died twelfth day	
Dont remember	Died about 11th day..	
Fourth	Died tenth day	
Can not say.....	Died about 8th day...	Considerable swelling of legs and face last day or two. Impossible to find any records in this case in St. Patrick's Hospital.
Fourth	Died eighth day	
About third day	Died in few days	
.....do.....	.....do.....
.....do.....	.....do.....
Third	Died ninth day	Case came from Hamilton and taken to St. Patrick's Hospital; only lived 2 days. Was broken out thoroughly on arrival; could get no history from him. A post- mortem held; only thing apparently ab- normal was spleen largely increased in size.
.....dc.....	Died eighth day	
.....do.....	Died tenth day	
.....do.....	Died eighth day	
.....do.....	.....do.....
Fourth	Recovery	This man was seen by me in consultation with the late Dr. G. P. Mills, who had charge of the case. It presented the usual type. He had marked delirium. was abundantly "spotted," but made a good recovery.

TABLE SHOWING CASES OF SPOTTED (TICK) FEVER REPORTED

Case No.	Physician's name and address	Year	Date of onset of symptoms	Patient's Initials	Sex	Age	Occupation
37	J. W. Howard, Hamilton..	1898	June 27	A. D.	do.....	43	do.....
28	J. T. Brice, Stevensville..	1899	May 19	D. M.	do.....	14	Schoolboy
39	do	1899	June ..	W. H.	do.....	30	Farmer
40	C. A. Crain, Missoula.....	1899	.....	H. M.	Female..	12	.....
41	R. Gwinn, Missoula	1899	June ..	M.	Male.....	30	Farmer
42	do	1899	do.....	W., Mrs.	Female..	39	Housewife
43	do	1899	do.....	B.	Male.....	18	Farmer
44	do	1899	do.....	F.	do.....	45	do.....
45	do	1899	do.....	T. (2 children)	Male and Female.	3-5	.....
47	do	1899	do.....	J. T.	Male.....	50	Prospector ...
48	do	1899	do.....	Mrs. J. A.	Female..	40	Housewife
49	do	1899	do.....	Mrs. S.	do.....	45	do.....
50	do	1899	do.....	M. V.	do.....	9	.....
51	do	1899	do.....	.....	Male.....	30	Lumberman ..
52	do	1899	do.....	.....	do.....	30	do.....
53	do	1899	do.....	.....	do.....	33	do.....
54	T. H. Harbridge, Victor...	1899	Apr. 24	L. W.	Female..	12	Schoolgirl
55	do	1899	May 4	Mrs. B. W.	do.....	18	Housekeeper ..
56	J. W. Howard, Hamilton..	1899	July ..	— J.	Male.....	2½	.....
57	do	1899	do.....	H. M.	do.....	2½	.....
58	do	1899	June 25	.....	do.....	35	Sawmill man
59	J. T. Brice, Stevensville..	1899	May ..	B. R.	Female..	3	None

BY PHYSICIANS OF WESTERN MONTANA—Continued.

About what day of illness did spots appear	Death on what day of dis- ease convalescence begin- about what day	Remarks
About fourth	Recovered at the end of the fourth week after attack. Dis- missed at end of 5½ weeks from date of attack	Was called to see this case on July 9, he having been attended by others prior to this. Found him entirely comatosed and learned that had existed for 3 days prior. Respirations hurried; Tempera- ture but slightly above normal and the petechia abundant, many of which, by their coalescence, made a spot as large as 1 inch in width and 2 or 3 in length, all of which, later on, formed dry gan- grene and sloughed to a depth including deep fascia.
Third	Recovered	
Fourth	Died tenth day	
No record	Recovered after about 3 wks treat- ment	Child from "Big Blacfoot" country, after disease was well developed. The spots were not as general as in the cases I had before, and were only general in distribution over the region of shoulders and spine.
Third	Died tenth day	
do	Died eighth day	
Second	Died fourth day	
Third	Died seventh day	Complicated with pneumonia.
do	Fourth	
Second	Died third day	Very violent attack after exposure.
Third	Convalescent 21st	
do	do	
Fourth	Convalescent 42d	Mild and prolonged attack.
Third	Died sixth day	
do	do	
Third	Died fifth day	Relapsed after abortive treatment.
Second	Died sixth day	
Fourth	Convalescence set in on 12th day. Fever dropped entirely out 22d day	
Fourth or Fifth	Recovered, Conval- escence began 10 days after coming under my observation and was dismissed at the end of three and a half weeks....	Temperature about 103; pulse exceedingly rapid; respiration between 40 and 50; petechia well defined and abundant; ex- treme prostration and marked jactita- tion. The foregoing symptoms continued until beginning convalescence.
Do not Know	Recovered. Conval- escence began at about the end of third week after attack, but not dis- missed for about four and a half weeks from the date of attack	Symptoms same as case No. 56, but in a more advanced stage, with a corre- spondingly increased state of petechia.
Third or fourth	Died. Saw patient first at about 9 p. m., and he died at about 8 the next a. m.	
Third	Died ninth day	

TABLE SHOWING CASES OF SPOTTED (TICK) FEVER REPORTED

Case No.	Physician's name and address	Year	Date of onset of symptoms	Patient's Initials	Sex	Age.....	Occupation
60	.....do	1899	Apr. ..	Mrs. J. W. ..	do.....	22	Housekeeper .
61	R. Gwinn, Missoula	1900	June ..	F. T.	Male.....	70	Farmer
52	.....do .....	.....	do.....	Mrs. L.	Female...	35	Housekeeper .
63	.....do .....	.....	.....	.....	Male.....	30	Laborer
64	T. H. Hanbridge, Victor..	1900	Apr. 30	Mrs. A.	Female...	42	Housekeeper .
65	.....do	1900	May 13	K.	Male.....	4	.....
66	.....do	1900	May 18	Baby	Female...	1½	.....
67	.....do	1900	Apr. 15	R. B.	Male.....	40	Stone mason
68	Geo. McGrath, Hamilton..	1900	May 2	T.	do.....	*9	.....
69	.....do	1900	May 8	B.	do.....	*2½	.....
70	.....do	1900	May 6	H.	Female...	*10	.....
71	.....do	1900	Apr. ..	Mrs. W.	do.....	*40	Housewife
72	.....do	1900	Apr. 16	Mrs. M.	do.....	*55	.....
73	.....do	1900	June ..	— N.	Male.....	*17	.....
74	Geo. Putney, Missoula	1900	Mar. 30	F. L.	Female...	*20	Ncne
75	H. F. Brethnour Hamilton	1901	May 6	S. ..	Male.....	25	Lumber jack .
76	J. T. Brice, Stevensville ..	1901	May ..	B. ..	Female...	3	None
77	.....do	1901	May ..	J. P.	Male.....	25	Laborer
78	.....do	1901	May 24	— R.	do.....	12	School boy ...
79	J. T. Brice, Stevensville..	1901	May ..	R.	Female...	13	Schoolgirl
80	J. J. Buckley, Missoula....	1901	May 17	A. H.	do.....	18	Attending scho
81	T. H. Hanbridge, Victor..	1901	Apr. 20	R. C.	Male.....	62	Laborer
82	.....do	1901	Apr. 2	E. B.	do.....	35	.....do.....
83	.....do	1901	May 4	Mrs. R.	Female...	62	Housekeeper .
84	.....do	1901	July 12	M. B.	do.....	7	.....
85	G. T. McCullough Missoula	1901	Mar. 27	B. R.	do.....	3	.....
86	.....do	1901	Mar. 20	J. F.	Male.....	34	Lumberman ..
87	Geo. McGrath, Hamilton..	1901	July 1	Mrs. M. H. ..	Female...	*37	Nurse
88	W. B. Parsons, Missoula.	1901	June ..	J. H.	Male.....	35	Lumber Jack
89	N. F. Brethnour, Hamilton	1902	May 13	Mrs. J. D. ...	Female...	33	Housewife

* About.

BY PHYSICIANS OF WESTERN MONTANA—Continued.

About what day of illness did spots appear	Death on what day of disease, or convalescence beginning about what day	Remarks
.....do.....	Recovered.....	Sent to Sister's Hospital, Missoula. Sick about 24 days, 2 months before recovery was complete. Treated by Dr. W. P. Mills at hospital.
Seventh	Died about 7th day....	Had a low fever record; eruption well marked.
Third	Died about 14th day..	Complicated by gangrene.
.....do.....	Died about 7th day....	
.....do.....	Died eleventh day....	No. 66 is a niece of No. 82 and died the year before.
Second	Died sixth day	
Third	Died eighth day	Recovered.
Fourth	Died seventh day	
Third	Last visit May 25, 1899.....	Do.
Can not tell at first visit	Last visit May 20.....	Do.
About fifth day	Last visit May 23, 1902.....	Do.
Third, so says husband	Died on third day of eruption	First and last visit the morning of day she died.
Fourth, so says her son	Died on tenth day of disease.....	
Do not know	Died about 13th day...	Considerable swelling of legs and face the last 2 or 3 days.
About one week after first symptoms appeared, but the symptoms came on gradually and I did not see her during first 6 or 7 days, so I can not say definitely	Died on 11th day	In this case the symptoms were about 3 days in reaching their height. She became slightly more ill with malarial fever, etc., each day, very much as a very malignant case of typhoid would do. Delirium about fourth day. Hypostatic pneumonia beginning at this time. I saw her first at the end of the first week, when she had been delirious for 3 days. She is supposed to have contracted the disease at Quigley, where she was visiting just previous to her illness.
Sixth	Convalescent sixteenth day	
Third	Died tenth day	Complicated with pneumonia; patient especially rugged.
.....do.....	Died ninth day	
.....do.....	Recovered.....	Sick 23 days when convalescence began. Disease taken regular course from onset. First symptom same as other cases of same disease.
Third	Died eighth day	
Fifth	Recovered	This patient made a good recovery though a very severe case and remarkably well spotted.
Third	Died fifth day	
Fourth	Died seventh day	This patient drank no water during the season.
.....do.....	Died eleventh day	
.....do.....	Died eighth day	This is a daughter of No. 82, but was not living on the same ranch.
About fourth	Died seventh day	
About fifth	Died tenth day	Very typical case. Patient conscious until hour or two before death. Full report obtained before.
Third	Recovered 21st day....	
.....do.....	Died sixth day	
.....do.....	Died eleventh day	

TABLE SHOWING CASES OF SPOTTED (TICK) FEVER REPORTED

Case No.	Physician's name and address	Year	Date of onset of symptoms	Patient's Initials	Sex	Age.....	Occupation
90	J. T. Brice, Stevensville....	1902	Apr. 20	Mrs. E. B.	do.....	*40	Housekeeper .
91	.....do	1902	May 18	A. G.	Male.....	22	Farmer
92	.....do	1902	Apr. 27	Mr. E.	do.....	74	.....do.....
93	.....do	1902	May 24	J. A. P.	do.....	*23	Laborer
94	.....do	1902	May 25	A. R.	Female...	*6	None
95	.....do	1902	June 3	J. O., Jr.	Male.....	2	.....do.....
96	.....do	1902	June 17	D. McD.	do.....	34	Lumberman ..
97	J. C. Burton, Missoula.....	1902	May 23	Mrs. V. R. W.	Female...	35	Wife of farmer
98	R. Gwinn, Missoula	1902	June 1	B. J. H.	Male.....	38	Timber inspector
99	.....do	1902	Apr. 22	McN.	Female...	30	Housekeeper .
100	.....do	1902	Apr. 8	B. J.	Male.....	45	Common laborer
101	Geo. McGrath, Hamilton..	1902	Mar. 17	A. M.	Female...	12	Schoolgirl
102	.....do	1902	Apr. 13	W. E.	Male.....	9	School boy ...
103	.....do	1902	Apr. 16	A. F.	do.....	35	Laborer
104	G. T. McCullough, Missoula	1902	Apr. 20	C. D.	do.....	20	Teamster
105	.....do	1902	Apr. 10	P. W.	do.....	9	.....do.....
106	W. B. Parsons, Missoula	1902	Apr. 12	McG.	Female...	4	None
107	.....do	1902	May 10	H. M.	Male.....	9	.....do.....
108	.....do	1902	May 25	G. R.	do.....	52	Farmer
109	E. W. Spottswood, Missoula	1902	May 6	J. W.	do.....	40	Lumberman ..
110	Dr. Owen, Hamilton.....	1892	Apr. 16	Mrs. S.	Female...	55	Housewife
111	.....do	1898	May 25	R. McF.	Male.....	30	.....do.....
112	.....do	1898	June 10	Mrs. J. H. ..	Female...	24	Housewife
113	T. G. Heire, Butte	1893	**	W. H.	Male.....	*34	Miner
114	.....do	1893	***	Mrs. W. H. ..	Female...	*30	Housewife

BY PHYSICIANS OF WESTERN MONTANA—Continued.

About what day of illness did spots appear	Death on what day of disease, or convalescence beginning about what day	Remarks
.....do.....	Died ninth day	Saw patient first in my office on second day of illness complained of. Pains in head, back upper and lower limbs soreness of muscles in all parts of body. Temperature, 102; pulse, 90; respiration, 24. Temperature did not raise above 103; was normal 24 hours before death.
Fourth	Died eighth day	Saw him first about 3 hours before death. Had been alone most all the time; could get no history. Spots well defined.
Unknown	Died about 9th day....	
Third	Died seventh day.....	Saw him first 33 hours after onset of disease. History same as above. Temperature, 103; pulse, 90; respiration, 24. Taken regular course of disease. Died on thirteenth day.
Second	Died eleventh day	
Third	Died eighteenth day....	
.....do.....	Died thirteenth day ..	
About fifth day.	Died sixth day	Began with chills and vomiting, with a rapid rise of temperature. Bowels were loose from onset of disease; urine scanty and highly colored. At first visit, two days after onset of disease, found temperature 105; pulse rate, 104, and respiration, 32. The temperature was kept under 103 by the use of baths, the pulse rate did not vary materially, and the respirations gradually increased to 45 per minute. Ten hours before death occurred temperature fell to 95 and the spots all became darker.
A few third day	Convalescent 8th day..	Abortive treatment; blood showed protozoan.
Ninth	Convalescent 10th day..	Abortive treatment used by patient at first attack.
.....do.....	Convalescent 9th day..	Abortive treatment; threatened gangrene of right toes.
About fourth	Recovery 21st day	Circulation quite rapid at end of two months.
.....do.....	Died Apr. 23 10th day..	Delirious much of the time after April 17, until death.
Fourth	Died about 12th day....	Convalescence beginning about twelfth day of disease.
About fifth	Recovered	No. 108 is the only one which recovered. He had been bitten by two ticks a few days before taken sick.
About third	Died ninth day	
Third	Died sixth day	
.....do.....	.....do.....	
.....do.....	Recovered in 3 weeks..	Convalescence very slow in each case; it was about 10 or 12 weeks before they could work, and their health was never so good afterwards while I knew them.
.....do.....	Died ninth day	
Fourth	Convalescence began about 18th day; last medicine given 5 weeks after onset of disease	
Death on 8th day ....	.....
Death on 9th day ....	.....
This I am not certain but I think about 8 or 10 days.....	Convalescent about fourth week	
About 8 or 10 days	Little earlier than husband	

SECOND BIENNIAL REPORT OF THE

TABLE SHOWING CASES OF SPOTTED (TICK) FEVER REPORTED

Case No.	Physician's name and address	Year.....	Date of onset of symptoms	Patient's Initials	Sex	Age.....	Occupation
115	Dr. McGrath, Hamilton...	1903	Apr. 7	O G.	do.....	8	Child
116	Dr. McCullough, Missoula.	1903	Apr. 19	Mrs. F. D.	do.....	18	Housewife
117	Dr. Brooke, Stevensville..	1902	Apr. 20	J. H. D.	Male.....	34	Farmer
118	Dr. Bryce, Stevensville...	1903	do.....	C. F.	do.....	48	Lumberman ..
119	.....do	1903	Apr. 25	R. S.	Female...	5	Child
120	Dr. Mills, Missoula	1903	Apr. 28	C W.	Male.....	28	Ranch hand .
121	Drs. Parsons and Brown, Missoula	1903	May 11	Mrs. L. M....	Female...	30	Housewife

* About.

** Early in March.

*** Ten days later than husband.

BY PHYSICIANS OF WESTERN MONTANA—Continued.

About what day of illness did spots appear	Death on what Day of dis- ease, or convalescence be- ginning about what day	Remarks
Third	About fifteenth day ..	Systematic treatment with quinine; para- sites in blood.
.....do.....	Eighth day	Blood showed parasites.
Fourth	Eighth day	Blood showed parasites.
Third	Convalescence began about 18th day	Blood showed parasites. Systematic treat- ment with quinine.
.....do.....	Convalescence began twelfth day	Blood examination not permitted. Qui- nine treatment.
Seventh.....	Died fourteenth day..	Blood showed parasites. No quinine.
Third.....	Convalescent fif- teenth day	Blood showed parasites. Quinine treat- ment.

8. **Method of Infection**—The life history of the organism of malaria and Texas fever naturally suggested that some insect was concerned in the transmission of the disease. On investigation it was found that the ticks appeared in the valley about the last of February or middle of March or first of April, the first case of fever appearing about the last of March. The ticks begin to diminish greatly in number from about June 1, and after the middle of July, the latest date on which the disease has been known to occur being July 20.

Mosquitoes do not appear in the valley until after the first cases of fever develop, and remain some time after the last cases appear. Bedbugs and other house insects, I think, were well excluded, by the fact that there has never been known an instance in which two cases occurred the same year in the same house.

On a closer study of the cases of spotted (tick) fever it was always found that there is a history of tick bites about one week before the onset. In four cases there was a history of a single bite or two, three, five and seven days, respectively, before the initial symptoms. The usual time between the bite and the onset of the fever is about seven days. If the tick transmits the disease, it may be asked, Why do not more persons become infected, and why is the infection confined to the west bank of the Bitter Root River? I think this may be answered by the very obvious fact that the tick is unable to travel any great distance, unless carried on some person or object. Again, it is very unusual for the tick to bite a person and not be discovered in a short while, and the result is the death of the tick. If, as in Texas fever, the development of a parasite takes place in the female tick and the young ticks transmit the infection, the very small number of ticks which escape detection on persons explains the small number of infected ticks. Where do the female ticks get their infection? I examined a recovered case twenty-four days after discharge by the physician and had no trouble in finding the parasite in the fresh blood. This child had been out of doors for over two weeks, and if a female tick (ticks were quite numerous near the house) had bitten her and escaped destruction the parasites in the blood taken in by the tick would have undergone development and the young ticks, when hatched out, would be ready to infect prospective victims.

While the above facts and conclusions tend strongly to the

belief that the ticks are necessary for the transmission of the disease, the actual fact can not be proved scientifically until carefully controlled experiments are made on nonimmune persons.

As many ticks as it was possible to obtain were collected in the Bitter Root Valley; twenty-four, representing what we thought to be different species, were sent to the Hygienic Laboratory of the Service in Washington, D. C., for classification. They were referred by the director to Dr. Ch. Wardell Stiles, zoologist of the laboratory, for determination, and he reported that "all of these specimens belong to the genus *Dermacentor*. There is considerable variation among them, but so far as I have been able to make out, this variation does not extend beyond the limits usually found in one and the same species in this group. Most of the material is not in the best condition for determination, but so far as I am able to discover, I can recognize as yet no specific difference between these specimens and *Dermacentor reticulatus*. I would, therefore, make the provisional diagnosis of *Dermacentor reticulatus*.

"The ticks in box No. 1 have laid numerous eggs, and I have developed the six-legged stage from them. I have now made arrangements to place these young ticks on cattle and develop all of the various stages. With fresh material of this kind I shall be able to determine whether the variations noticed extend beyond the limits of specific value, and also whether there is any reason for me to change by opinion that these represent the species known to zoologists as *Dermacentor reticulatus*."

SYMPTOMS.

Incubation—This is from three to ten days, usually about seven. For a few days the patient may have chilly sensations, malaise and nausea; finally there is a distinct chill, and the person takes to bed. There is some pain in the back of the head; soreness of the muscles and bones, causing a sensation as if the limbs were in a vise; bowels constipated; tongue with heavy white coat, red edge and tip; conjunctivae congested, becoming yellowish; urine usually small in amount, with albumin and a few casts; slight bronchitis after a few days; nose bleed, sometimes quite severe, is always present.

Fever—Before the distinct chill there is little or no fever in the morning, with a slight rise in the afternoon. After the chill

there is an abrupt rise, and from then on the fever gradually rises in the evening, with a slight morning remission. The maximum is usually reached on the eighth to the twelfth day; then, in a favorable case, gradually falls, becoming normal about the fourteenth to the eighteenth day, usually going to subnormal for a few days. In fatal cases the fever remains high, from 104 deg. to 105 or 106 deg., and the morning remissions are very slight or not present.

Circulatory System—The pulse appears out of all proportion to the temperature, usually running from 110 to 140, a pulse of 120 being not unusual with a temperature of 102 deg. It is rather thready, though sometimes full and strong, occasionally dicrotic in the first week. Red blood counts show a progressive decrease in red cells, but as soon as the temperature becomes normal an increase begins. The white blood corpuscles are increased in number, varying from 8,000 to 12,000. A differential count in two cases gave an average of—

	Per cent.
Polymorphonuclear leucocytes	77.7
Large mononuclear leucocytes.....	11.4
Small lymphocytes	10.0
Eosinophiles .....	.9
Total	100.0

This shows as its most interesting feature an increase in the large mononuclears.

There was a steady, but never very rapid, decrease in the percentage of hemoglobin, one case going as low as 50 per cent.

The blood failed at all times to agglutinate bacillus typhosus.

Fresh and stained blood showed the three forms of parasites described under etiology. *

The Eruption—The eruption appears usually on the third day, first on the wrists and ankles, then on the arms, legs, forehead, back, chest, and last and least, on the abdomen. It is never very abundant on the abdomen, but the other portions of the body in some cases are literally covered by the eruption.

At first the spots are of a bright red color, macular at all times, from a pin point to a split pea in size. At first they disappear readily on pressure and return quickly, but if the case is a very severe one they soon become darker and in some cases are al-

* The average normal red blood count at this elevation (3,500 feet) gives over 5,500,000.

most purple. From about the sixth to the tenth day of the disease they fail to disappear on pressure and are distinctly petechial in character. In favorable cases, about the fourteenth day they begin to lose their petechial character and disappear slowly on pressure. In some cases the eruptiton consists of small, brownish spots, giving a turkey-egg appearance, well shown by the photographs on pages 22 and 23.

As the fever declines the eruption begins to fade; but a slight return of fever or a free perspiration will cause it to show distinctly. I am informed that, following a warm bath in a case ten months recovered, the spots showed distinctly. I have seen them in a case twenty-four days after discharge.

When convalescence is well advanced desquamation begins and extends over the entire body. In very severe cases there may be gangrene of the fingers or toes, and still more frequently of the skin of the scrotum and penis. The skin is always jaundiced to a greater or less degree. This is usually first noticed in the conjunctivae, the vessels of which are congested from the outset.

Digestive System—The tongue at first has a heavy whitish coat, with red edge and tip; later the coat becomes dark brown and the teeth are covered with sordes. At first there may be a little nausea, but the appetite is often good throughout the first week. In fatal cases nausea becomes more persistent during the second week and lasts until the end. Constipation is present throughout the course of the attack. Tympanites is never excessive; gurgling in right iliac fossa occasionally. The liver is usually moderately enlarged. The spleen is enlarged early and may extend 1 or 2 inches below the costal margin.

Urinary System—The urine is decreased to about one-half its normal amount for the twenty-four hours; small amount of albumin in all cases examined; granular, hyaline and epithelial casts.

Respiratory System—The respiratory rate is always increased, usually varyinig from 26 to 40 per minute, in some cases reaching 50 to 60; regular, but often shallow. In the second week there is always a slight bronchitis. Lobar pneumonia is a frequent complication in fatal cases. Epistaxis is usually seen from the end of the first week.

Nervous System—Pain in head and back is usually severe during the first week. Soreness of the muscles and bones cause the patient to change position often in the endeavor to find a comfort-

able posture. The muscular soreness is often very severe, even in mild cases, and lasts until recovery. The mind is usually clear, even in severe cases, until within a few hours of the end. Pupils react normally to light and distance; no opisthotomus or other irritative symptoms.

HISTORY OF CASES.

Case 115, 1903—O. C., age 8 years, residence about 3 miles west and 1 mile south of Hamilton, about 1 mile east of case Mrs. J. D., case 89, 1902. (See map, p. 8.)

About April 1 two ticks were removed from right side of head near middle line. The wounds became quite sore on the following day and the child complained of headache during the ensuing week. April 7 or 8 the child complained, in addition to headache, of soreness from site of bite down the side of head behind right ear and neck to shoulder. The post-cervical glands were enlarged, particularly on right side. At this time she complained of being chilly, though she did not have a marked rigor. She was feverish April 8, 9 and 10. On April 10 spots began to appear, first on the extremities.

She was first seen by Dr. G. B. McGrath, of Hamilton, on April 13.

Patient was seen by Drs. McGrath and Wilson April 24. Child seemed pale, weak and easily tired, but otherwise well and able to play outdoors. Over the forearms, legs, thighs and back there was a distinct mottling of the skin. Pressure over these areas increased the distinctness of the spots. Examination of fresh blood showed a few ovoidal bodies within red cells. Count showed—

Red blood corpuscles.....	4,720,000
Leucocytes	4,590
Hemoglobin (Tallquist)	per cent 80

Post-cervical glands on right side still enlarged.

Patient examined again May 5 by Drs. Anderson, Hanbidge and Wilson. Feeling much better, not as pale as on previous examination, and able to play longer without tiring. Pulse, 112; temperature, normal.

Red blood corpuscles.....	4,824,000
Leucocytes	4,450
Hemoglobin (Tallquist)	per cent 90

Fresh blood showed a few red blood corpuscles which contained the ovoidal bodies similar to those seen at first examination.

Case 116, 1903—Mrs. F. D., age 18 years, married one and one-half years, mother of 7-months-old child. Residence on left bank of Lolo Creek, 1 mile west of Lolo store. (See map, p. 8.)

On April 12 or 13 Mrs. D. was with her husband with team in grove of small poplars 300 yards north of residence. On this day she was perhaps also across Lolo Creek, south of house; accurate information on this point could not be gained. Certainly the horse had been across the creek only a day or two previous to April 13. On the evening of April 12 "a large red tick" was found fast under Mrs. D.'s left arm and was removed with some difficulty. On the following day the wound was sore and swollen, as were also the glands in the auxiliary space. The soreness became less marked after a few days, but did not at any time completely disappear.

On April 19 the soreness became much worse, and shooting pains began radiating from the axilla through the shoulder, down the arm and side of the body. Patient had a severe chill, followed by high temperature and aching pains in back. These gradually extended to the whole body. Patient felt better on April 20 and 21 in the morning, but was worse again in the afternoon.

On April 22 she was brought to St. Patrick's Hospital, Missoula, and placed under the care of Dr. McCullough. On the evening of April 22 spots began to appear first on the wrist and ankles. On the morning of April 24 spots were well developed all over body, being of the small petechial type and quite rosy in appearance. Patient's mind at this time was quite clear (except for slight wandering immediately after awakening) and remained so until a few hours before death.

Patient examined April 24, 9 a. m., by Drs. McCollough, Gwinn, Spottswood and Wilson. Fresh blood showed a few red cells which contained ovoid bodies with amoeboid movements (an alcohol lamp was in front of concave mirror). Count showed—

Red blood corpuscles	4,920,000
Leucocytes	7,400
Hemoglobin	per cent 100

Cultures with blood taken from the ear were made on agar and serum. These showed no growth after three days in the incubator.

Patient was examined again April 26 by Dr. Wilson. Condition was apparently the same as when last seen except the pa-

tient was more restless. Fresh blood showed many more infected cells than that collected April 24. Count showed—

Red blood corpuscles	4,600,000
Leucocytes	7,600
Hemoglobin	per cent 80

Patient died at 10 a. m., April 27. (For temperature, pulse, etc., see accompanying chart.)

On the afternoon of April 24 Dr. Wilson, in company with Mr. D., examined the latter's ranch and searched for ticks in the locality where Mrs. D. was supposed to have gotten her infection. No ticks were found.

Case 117, 1903—J. H. D., age 34, residence one-half mile north and one-fourth mile west of Florence. (See map, p. 8.)

Was bitten on top of the head and on left arm by ticks on Thursday, April 16. Ticks, when removed on this date, were partially filled with blood, having evidently been in place for some time. Wounds were sore before removal of ticks and continued so until disease was well developed. On April 20 soreness of wound on head extended over side of head and down neck with shooting pains to shoulder, arm and hand. Patient had marked chill, followed by fever.

On April 20 spots appeared on hands and feet, extending up forearms and legs and appearing on back in a few hours. Patient was seen on this day by Dr. Brooke, of Stevensville. No record of pulse, etc., was kept, but the following figures were obtained from nurse after death of patient:

Temperature.

April 20	105.0	April 24	103.0
April 21	101.0	April 25	100.2
April 22	99.0	April 26	100.0
April 23	105.0	April 27	98.0

Pulse ran from 90 to 120 throughout the disease, until the last twenty-four hours. Respiration normal at first, became more rapid and labored until a few hours before death, then gradually grew weaker. Mind was clear throughout the course of the disease until a few hours before death. After initial constipation bowels were regular without medicine. Tongue was coated throughout course of disease.

Patient was examined April 27, at 2 p. m., by Drs. Brooke and Wilson. Temperature normal, pulse 108, respiration 30 and labored. Face and limbs much swollen. Mind fairly clear, but some stupor. Skin over whole body, and especially of depend-

ent portions, showed spots of dark red to purple in color and from 1 mm. to 3 cm. in diameter. Over the legs and forearms a marked marbled appearance was produced. Fresh blood showed relatively large numbers of red blood cells which contained parasites. Count showed—

Red blood corpuscles	4,368,000
Leucocytes	7,800
Hemoglobin	per cent 60

Patient died on April 28, 4 a. m. No autopsy was performed.

Case 118, 1903—E. F., age 48 years, residence 4 miles north of Stevensville, on main road. (See map, p. 8.) Had been bitten many times by ticks during the spring of 1903. Had no remembrance of any single severe bite shortly before illness. Was not feeling well on Sunday, April 19. Had a chill on April 20, followed by fever with morning remissions during the next two days. Spots began to appear April 22, first on extremities. Were well marked April 23, when patient was first seen by Dr. Bryce, of Stevensville. Patient at this time presented the usual symptoms of headache, fever (temperature 103), aching pains in back and limbs, and constipation. Patient was given calomel 10 grains and quinine sulphate 40 grains by the mouth. Patient examined April 27, at 11 a. m., by Drs. Bryce and Wilson. Spots were numerous, large, and covering the entire body, were rosy in appearance except on dependent portions, where they were somewhat darker in color. Temperature 101, pulse 104, respiration 26. Fresh blood showed a few red cells containing organisms. Count showed—

Red blood corpuscles	4,576,000
White blood corpuscles	7,300
Hemoglobin	per cent 70

At Dr. Wilson's suggestion, the patient's room was darkened, with apparent good results in allaying restlessness.

Patient examined again April 29 by Drs. Bryce, Johnson and Wilson. Examinations of fresh blood showed many red blood cells containing organisms. Count showed—

Red blood corpuscles	3,820,000
Leucocytes	8,000
Hemoglobin	per cent 50

Patient examined again May 2 by Drs. Bryce, Anderson and Wilson. Patient very weak; condition otherwise much as before. Spots somewhat darker on dependent portions, but more rosy over remainder of body. Temperature 102.5, pulse 120, respiration 28. Patient had only strychnine for the last twenty-

four hours. Given subcutaneous injection of quinine hydrochlorate 20 grains at time of visit. Examination of fresh blood showed a few organisms in red cells. Count gave—

Red blood corpuscles	3,920,000
Leucocytes	8,500
Hemoglobin	per cent 60

(Specimen taken from same point as that of April 27.)

Patient passed into a state of semi-consciousness, gradually increasing to total unconsciousness, which gradually passed away, having lasted seventy-two hours.

Pulse was about 120, temperature ran between 102.5 in the morning to 103.5 in the afternoon until May 9, then it dropped to subnormal. The spots remained dark until about the 14th, when they became much lighter, gradually disappearing, first from the extremities and back. Recovered.

Treatment: Bowels kept open with calomel. Quinine sulphate 2.6 grams by mouth every twenty-four hours, and quinine hydrochlorate in gradually increasing doses up to 3.3 grams every twenty-four hours hypodermically until improvement began, then gradually decreased. Patient was frequently given hot sponge baths, which allayed the restlessness and lessened the congestion of the skin, causing spots to change from dark red to rosy red.

Case 119, 1903—R. S., female, age 5 years, residence 1 mile north of Florence and about one-eighth mile south of O. G.'s residence. (Map, p. 8, case No. 91, 1902.) Child's two sisters and brother had been frequently bitten by ticks during the spring of 1903. The child had, however, been in Missoula during most of the spring until three weeks before sickness began. The wound remained sore and some pain and swelling was present, extending down side of head behind ear and to right neck.

April 25 patient appeared dull and feverish. On April 27 spots began to appear first on back and thighs (child had been in bed since April 25). Dr. Bryce, of Stevensville, saw patient on this day (April 27). Temperature 102. Quinine hydrochlorate was given by mouth and room darkened. Patient seen April 29, 12 m., by Drs. Bryce, Johnson and Wilson. Child feeling well; mind clear. Spots consisted of fine petechiae. Temperature 101, pulse 120, strong and regular. No examination of blood permitted.

Patient examined May 2 by Drs. Bryce, Anderson and Wilson. Child weaker and more restless than on April 29, other-

wise condition much the same. Pulse 120, temperature 101.4. Quinine hydrochlorate was given in 10-grain doses twice daily, at first by rectum. Temperature remained about 102 deg.

On May 5 gradually became unconscious and remained so for about five days, and then gradual improvement began, which was interrupted by an attack of acute indigestion on the 14th, which gradually passed off. Spots remained dark red until about the 12th, and then began to fade. Recovery.

Case 120, 1903—E. M., Finlander, age 28, resident of cottage where O. G., case 91, 1902, died; about 1 mile south and 1 mile west of Florence station. (See map, p. 8.) Had not often been bitten by ticks during the spring of 1903; in fact, does not remember having been bitten at all until he removed two ticks April 28, one from over left breast and the other from over left biceps. These ticks must have been in place for some time, since both were filled with blood.

On the evening of Monday, April 28, patient had a chill, followed by fever and pains in back and limbs. Pains and fever continued next day and patient walked to a friend's $1\frac{1}{4}$ miles distant. On arrival there he examined himself and found the two ticks above mentioned.

On April 29, 3 p. m., patient first seen by Dr. Bryce. Temperature 102.5, pulse 108, furred tongue, peculiar, sweetish odor of breath, circulation on compressed areas and extremities feeble. Mottling of skin over palms of hands, especially thumbs. Patient showed considerable mental dullness and complained of headache, pains in back and limbs, and bad taste in mouth. Diagnosis of beginning spotted fever was made. Patient given 15 grains of blue mass and 40 grains of quinine hydrochlorate by mouth.

On the morning of April 30 patient was brought to St. Patrick's Hospital and placed under the care of Dr. Mills. (For temperature, pulse, respiration, etc., from this time see chart.)

Symptoms as noted by Dr. Bryce continued after initial slight abatement until May 4, when patient felt worse. On the morning of May 5 Dr. Mills observed small red spots on right side over region of liver; more spots on back and on wrists in the afternoon. On the morning of May 6 spots were quite abundant over regions noted above and also over thighs and forearms. Specimens of blood taken, fixed, and stained by Dr. Charles Pixley showed a few intracellular bodies.

At 3 p. m., May 6, patient was examined by Drs. Mills, Pixley, Ashburn, Merritt, Anderson and Wilson. Patient apathetic; tongue with heavy, white coat, red margins and tip. Spots were numerous on extremities and back; few or almost absent over abdomen; scattered, but larger and more plentiful over chest; obscured on face by tan, beard and pockmarks. Spots were 2 to 5 mm. in diameter, rosy in color, not elevated, and disappeared readily on pressure, also readily reappeared when pressure was removed. Spleen much enlarged; liver normal. Considerable gurgling and tenderness in right iliac fossa: Fresh blood showed a very few organisms in red cells, mostly of small type. Count gave—

Red blood corpuscles	4,744,000
Leucocytes	4,800
Hemoglobin	per cent 99

Examined again 10:30 a. m., May 7, 1903, by Drs. Mills, Pixley, Bryce, Anderson and Wilson. Spots more general over body, but somewhat lighter in color than on previous day. Patient feeling better. Spleen and liver as on previous day. Gurgling in right iliac fossa still present; no tenderness. Fresh blood showed a few organisms, mostly of small type.

Red blood corpuscles	4,722,000
Leucocytes	6,900
Hemoglobin	per cent 87

Patient seen on the 8th of May, 10 a. m., by Drs. Mills and Anderson. Patient sleeping, having had sulphonal, grains 40, the night before. Conjunctivae much injected. Spots bright red, very numerous on back, plentiful on legs, thighs, arms and especially on forearms; disappear very slowly on pressure and return slowly. Spleen and liver as yesterday; pulse of fair volume.

Red blood corpuscles	4,721,00
Hemoglobin	per cent 85

Very few intracellular bodies seen in fresh blood preparations. Small amount of albumin in urine, heavy deposit phosphates; no casts or red blood cells.

May 9, 1903, patient seen by Drs. Mills, Wilson and Anderson. Apparently not as well as yesterday. Conjunctivae much injected. Spots on back bright red, do not disappear on pressure; on arms and lower limbs disappear very slowly and return slowly.

Red blood corpuscles	4,458,000
Hemoglobin	per cent 82

Few intracellular bodies seen in fresh blood in red cells. Paired organisms, united by fine threads in two cells, seen for the first time. Albumin present; granular and epithelial casts.

May 10, 1903, 11 a. m., patient seen by Drs. Mills, Wilson and Anderson. Much weaker than yesterday. Had nose bleed during night. Pulse about 102 and of poor volume. Spots on back of a petechial character and do not disappear on pressure; on hands and legs disappear very slowly.

Red blood corpuscles	3,858,000
Hemoglobin	per cent 77

Many intracellular bodies seen in fresh preparations. A few paired ones united by fine thread.

May 10, 1903, 8 p. m., patient seen by Drs. Mills and Anderson. Pulse stronger and fuller than this morning. Had nose-bleed for about thirty minutes in afternoon and morning.

May 11, 1903, patient seen by Drs. Mills, Wilson and Anderson. Very much weaker. The conjunctivae much injected and jaundiced. Pulse about 120; very poor volume. Spots on back distinctly petechial and dark purple; on hands and lower limbs petechial in character; dark spots on hands; skin distinctly yellow.

Red blood corpuscles	3,672,000
Hemoglobin	per cent 75

Albumin present in urine; granular and epithelial casts; no red cells. Blood taken on the 12th day of the disease did not give positive widal reaction with *B. typhosus* in a dilution of 1:20.

Patient died May 12 at 5 a. m. At 6 a. m. was removed to undertaking rooms, surface of body cleaned and sponged with embalming fluid (formaldehyde). Autopsy at 2 p. m. by Drs. Anderson and Wilson, in presence of Drs. Mills, Pixley, Gwinn, Spottswood and Olson.

Body that of well-nourished man. Panniculus adiposis about normal. Some edema about ankles, hands and face. Rigor mortis not intense. Small to large petechial hemorrhages covering body, somewhat obscured by tan on face and hands, and by thickened skin on hands and feet. Petechial spots over chest and abdomen from pin point to 5 mm. in diameter. Over dependent portions of elbows, thighs and back areas are largest, being from 1 to 3 cm, in diameter. Over inner aspect of arm and forearm petechial spots are very thickset, but not coalescent. The epidermis over the scrotum was sloughed off from area of

about 2 to 5 cm. in diameter. On the left chest 3 cm. from middle line and just above the left biceps were two small recent scars. (See history of tick bite.)

Post mortem lividity on dependent portions of skin and thighs. Entire skin deeply jaundiced.

Lungs: There was no adhesion of the pleura. Lungs were normally inflated, containing no consolidated areas except a very few points resembling emboli.

Pericardium: Normal; cavity contained about two ounces of fluid. Right heart half filled with blood; left contracted. Small chicken-fat clots in auricles. A few small hemorrhages over left ventricle near inter-ventricular groove under the pericardium. Myocardium somewhat pale and flabby.

Endocardium apparently normal.

Spleen: Greatly enlarged (weight, 20 ounces) one hour after removal; very soft, dark and diffuent.

Stomach: Apparently normal, except hypostatic congestion over dorsal surface of fundus.

Small intestine: Empty and showing no inflammation or congestion except hypostatic. Peyer's patches pale and not congested.

Mesenteric and retroperitoneal glands pale and not enlarged.

Liver: Enlarged (weight, 92½ ounces) one hour after removal. Pale, fatty in appearance, and in some areas outlined by engorged bile ducts.

Pancreas: Normal in appearance, except enlargement (weight 5 ounces), one hour after removal.

Kidneys: Enlarged. Weight of left 10 ounces one hour after removal. Capsule adherent; minute subcapsular hemorrhages, especially over greater curvature. On section, cortex congested; pyramids well outlined. Small hemorrhages about 1 mm. in diameter in pelves.

Bladder wall: Apparently normal; cavity contained about 4 ounces of urine.

Cultures in broth and on Löffler's serum were made from pericardial fluid, heart's blood, spleen pulp, liver and kidney substance. Smear preparations were made from lung substance, heart wall, spleen pulp, liver and kidney substance, and red marrow of rib. Portions of skin, lung, heart wall, spleen, liver, small intestine (including Peyer's patches), pancreas and kid-

neys were preserved in Zenker's fluid, 95 per cent alcohol and 10 per cent formalin. Portions of rib were fixed in picro-sulphuric and nitro-sulphuric acid solutions.

Cultures: After 48 hours in the incubator all cultures remained sterile, except one from the liver and one from the kidney. The serum culture from the liver developed one colony of a staphylococcus, which remained white after 72 hours' growth (presumably *Staphylococcus pyogenes albus*).

On the serum culture from the kidney there developed a few colonies of a small bacillus which in broth, on serum, plain agar, and in and on litmus dextrose agar gave the appearance and the reaction of *Bacillus coli. c*.

Case 121, 1903—Mrs. L. M., age 30, born in Germany, residence near Rock Creek clubhouse. (See map, p. 8.) Mother of child H. M., case 107, 1902.

Had not been away from home since October, 1902, and there had been no visitors at the house since last fall; husband had not been to Missoula since winter. These details are mentioned to show the isolation of the locality and the impossibility of infection from the Bitter Root Valley.

Two months pregnant. Had been in good health for past year and spent considerable time shooting near home and clubhouse during the spring. All the members of the family had been frequently bitten by ticks during spring of 1903. As soon as ticks were discovered they were removed by ammonia or whiskey, and lately by applying carbolic acid.

On May 3 a tick was removed from patient over left breast and another over left scapula; ammonia only was used.

On May 10 she complained of headache, backache and nausea; went to bed for a few hours.

May 11 had a distinct chill, followed by considerable fever.

May 12 and 13, felt better in morning, but worse in evening.

May 14, confined to bed and Dr. Parson called, but he was unable to go and Dr. Brown went on the 15th. He found the patient with temperature at 103 deg., pulse 120, suffering with severe pain in back and limbs, tongue with heavy white coat; nausea. A few small red spots were noticed on ankles, legs and knees; none on face or chest; few on anterior aspect of wrist.

May 16, temperature 103 deg., pulse 120, spots beginning to appear on back and arms.

May 17, patient brought to Missoula and placed in Dr. Par-

son's private hospital. Seen at 8 p. m. by Drs. Brown, Wilson and Anderson. Temperature 102 deg., pulse 126, full and strong. Headache, backache, soreness of muscles of legs and arms. Tongue with white coat in center and red tip and edges. Small scattered red spots, most plentiful on thighs and back, none on face, few on chest, a very few on abdomen, some on forearm, wrists and ankles; all disappear readily on pressure and return quickly when pressure is removed.

May 18, seen at 9 a. m. by Drs. Brown, Wilson and Anderson. Had morphine sulphate, one-fourth grain, during night. Condition much as yesterday. Spleen enlarged and easily palpable; liver not enlarged. Spots bright red in color and more distinct than before; no increase in number. Conjunctivae injected. No Kopliks spots. Fresh blood showed few amoeboid oval bodies in red blood cells. Count gave—

Red blood corpuscles	4,380,000
Leucocytes	7,000
Hemoglobin	per cent 75

Differential white count gave—

	Per cent.
Polymorphonuclear leucocytes	78.7
Large mononuclear leucocytes	10.6
Small lymphocytes	9.9
Eosinophiles	8
Total	100.0

May 19, seen at 9 a. m. by Drs. Brown, Wilson and Anderson. Dull aching pains in head and back; muscular soreness more marked. Mind clear, slight nausea, constipated. Spots darker in color, but not increased in number; disappear slowly on pressure and return slowly when pressure is removed.

Red blood corpuscles	4,723,000 (?)
Leucocytes	10,400
Hemoglobin	per cent 70

Fresh blood shows a few intracorpuscular organisms of the single oval form. A preparation stained with Wright's stain, followed by Löffler's methylene blue, showed a large single oval parasite in a red cell.

May 20, visited at 9 a. m. by Drs. Anderson and Wilson. Headache and muscular soreness more intense. Complains of pain in bones and joints. Had nose bleed during the night. Conjunctivae congested and slightly jaundiced. Mind clear.

Red blood corpuscles	4,452,000
Leucocytes	8,400
Hemoglobin	per cent 66

Not as many organisms found in fresh blood. No albumin or casts in urine.

May 21, seen by Drs. Anderson and Brown. Complains of ringing in ears. Headache and muscular soreness. Pulse good volume. Spleen about 1 inch below lower border of ribs. Liver slightly enlarged. Spots rather brighter in color than yesterday. Blood examination not permitted. No albumin or casts in urine.

May 22, visited at 9 a. m. by Drs. Brown, Chowning and Anderson. Had slept fairly well during night. Felt better. Temperature lower. Conjunctivae more congested and jaundiced. Nose bleed for short time during night. Spots brighter in color. Pulse good volume.

Red blood corpuscles	4,220,000
Hemoglobin	per cent 60

No albumin in urine.

May 23, seen at 9 a. m. by Drs. Brown and Anderson. Says she feels much better; slept well; wants to eat. Bowels moved naturally during night. No pain in head or back. Spots bright, but still do not disappear on pressure. Temperature 99 deg., pulse 104.

Red blood corpuscles	3,772,000
Hemoglobin	per cent 62

No albumin in urine.

May 24, visited at 9 a. m. by Drs. Brown, Anderson and Chowning. Says she feels all right. Spots bright red and a few disappear slowly on pressure. On account of disappearance of tan on face a few were noticed there for the first time. Conjunctivae still jaundiced.

May 25, seen at 9 a. m. by Drs. Brown and Anderson. Says she is hungry; feels stronger; slept well. Normal temperature for first time.

Red blood corpuscles	4,200,000
Hemoglobin	per cent 62

Spots beginning to fade. Patient was visited by Drs. Brown and Anderson until May 30, but other than the gradual return of strength and slow disappearance of the spots and jaundice, nothing was noticed.

No further blood examinations were permitted after the 25th. Blood taken on the seventh and twelfth days of the illness did not give positive Widal reaction in a dilution of 1:20.

Treatment: On admission a cathartic was given and bowels were kept open each day with medicine or enema. On May 17 treatment was given of calcium sulphide and, at the suggestion of Drs. Anderson and Wilson, quinine sulphate (2.6 grams) every twenty-four hours was given and continued until recovery. The room was kept dark and warm sponge baths given about three times daily. These seemed to act especially well in relieving the congestion of the skin and allaying restlessness, and after each bath it was noticed that the spots lost their dark appearance and became much brighter. The patient was allowed milk, broth, egg-nogs and occasionally soft toast.

MORBID ANATOMY.

The following summary of the post-mortem appearances of the disease are based on the findings in seven cases from the Bitter Root Valley.

Rigor mortis—Usually intense and appears early.

Skin—Jaundiced, some times deeply. One or more wounds apparently caused by tick bites usually present. The skin has a marbled appearance, well shown by the cut on page 23. On the non-dependent parts of the body spots, petechial in character, from bright red to dark purple in color and from 1 to 3 cm. in diameter; most abundant on wrists, ankles, arms and back. The capillaries are congested; minute extravasation in the rete extending into the stratum mucosum.

Nervous system—The cerebral and spinal meninges are normal except for slight hypostatic congestion. No increase in fluid. The brain and spinal substance normal.

Respiratory organs—Pleurae normal and do not contain excess of fluid. Lungs show hypostatic congestion; occasionally pneumonia.

Circulatory system—Pericardium normal. A few small petechial hemorrhages under the epicardium over left ventricle were constantly found. The heart muscle is flabby, softened and pale. Right heart full of blood; left, contracted and empty. The nuclei are faintly stained; fibers granular and fragmented.

Digestive organs—Stomach, normal. Small and large intestines normal in appearance throughout; Peyer's patches rather pale in color. Mesenteric and retroperitoneal glands not enlarged. Spleen usually dark purple in color, soft, diffuent, and from three to four times its normal weight; vessels engorged

with blood; many mononuclear leucocytes containing from one to four red corpuscles; no free pigment. Liver enlarged, fatty, and in portions areas outlined by bile pigment; sections usually show an advanced degree of fatty infiltration; bile capillaries full. Pancreas about twice its normal weight.

Kidneys—Enlarged; capsule usually not adherent. Small subcapsular hemorrhages on ventral surface. On section, congested and swollen cortex; pyramids well outlined and deep red color. Small hemorrhages in pelvis. Microscopically there are minute extravasations of blood in cortex and under the capsule; veins filled with blood. Nuclei of the convoluted tubules stain poorly; cells granular and in some places detached; newly formed casts in tubules. Bladder normal and usually with small amount of dark urine.

PROGNOSIS.

Of 121 cases which have occurred in or near the Bitter Root Valley, 84 died, giving a case mortality of about 70 per cent. The mortality varies within narrow limits from year to year, some years as many as 90 per cent of those attacked dying. The cases which have occurred near Bridger, Mont., show about the same mortality. Death usually occurs between the sixth and twelfth day. The abundance of the eruption apparently bears no relation to the severity of the disease. The disease in Nevada and Idaho is not nearly as fatal as in Montana. Dr. Maxey says of the Idaho cases:

"The prognosis in spotted fever is, as a rule, very favorable if the patient is transferred to the lower valleys where he can have home comforts and proper care. The disease seems to be more malignant in some localities than it is in others, and in one year than in another."

DIAGNOSIS.

Cases occurring in the infected localities and presenting a history of tick bites, chill, pain in head and back, muscular soreness, constipation, macular eruption, first on the wrists and ankles, appearing on the third day of illness, becoming petechial in character, do not present much difficulty in diagnosing spotted (tick) fever. A blood examination should be made in all suspicious cases. There are five diseases which might cause some difficulty in differentiating them from spotted fever.

Dengue—This is a disease of tropical and subtropical coun-

tries, whereas spotted fever occurs at an elevation of from 3,000 to 4,000 feet above sea level. The swollen joints, pleomorphic eruption over the joints, never petechial, apyretic period, and short course of the disease would differentiate it from spotted fever.

Cerebro-Spinal Meningitis—The stiffness of the muscles of the neck, photophobia, sensitiveness to sudden noises, headache and rigidity of the muscles of the back and neck, with the not altogether constant irregularly situated rash, should not cause much trouble.

Peliosis Rheumatica—In this disease the sore throat, multiple arthritis with purpura and urticaria, and comparative rarity of the disease, offer a sufficiently distinct clinical picture.

Typhoid Fever—Clinically this disease closely resembles spotted fever, but the rose spots appearing first on the abdomen—popular in character—diarrhea, Widal reaction, and presence of the typhoid bacilli in cultures from the blood of typhoid fever, and the presence of parasites in the red blood cells of spotted fever, suffice to separate distinctly the two diseases.

Typhus Fever—Spotted (tick) fever, I think, more closely resembles typhus fever than any other disease, and cases of typhus fever occurring in a locality in which spotted fever prevails would, without a blood examination and close bedside observation, cause much trouble in diagnosis. In typhus we have the longer period of incubation, absence of a history of tick bites, the eruption which first appears on the abdomen and chest, its intensely contagious character, especially prevalent in the winter months, not limited to a short time in the spring, and marked nervous symptoms. As before mentioned, two cases of spotted fever have never been known to occur in the same family the same season, thus conclusively showing the non-contagious character of the disease.

TREATMENT.

Until the past season the treatment of the disease has been purely symptomatic, but after the discovery of the parasite Dr. Wilson and the writer suggested the use of quinine in large doses, preferably hypodermatically. In five cases in which it was used systematically and in large doses the results were most happy, all recovering. Five cases which did not have the treatment died. Of course, 10 cases is too small a number on

which to base very positive conclusions, but I hope that the use of quinine will be followed in the future treatment of the disease.

Quinine bimuriate, 1 gram, should be given hypodermatically every six hours. If there is great objection to the use of the needle, the sulphate, 1 gram, every four hours may be given by mouth; but the irritable condition of the stomach at times may prevent. The use of quinine should be begun as soon as the diagnosis is made and persisted with in decreasing doses as convalescence begins.

Some of the valley physicians seemed to fear that quinine depressed the heart and caused nervous symptoms; but I am of the opinion that the great good the drug does more than counterbalances these effects. I strongly advise the early and continuous use of large doses of quinine.

Some physicians speak well of calcium sulphide, and others of creosote.

The heart should be supported with strychnine, whisky or other appropriate cardiac stimulants.

For the severe pain in the head and back during the first week Dover's powders or morphine sulphate may be used. The patient should be encouraged to drink large quantities of water to flush out the kidneys. For the fever, warm sponge baths or packs are useful and refreshing to the patient. After a bath the spots lose their dark color and become much brighter. The room should be kept dark and as free from noise as possible.

Milk, buttermilk, broth, soft eggs and soft toast may all be allowed. The whisky may be administered in an eggnog.

As soon as a person is bitten by a tick the insect should be removed and the place cauterized with 95 per cent carbolic acid. There is sometimes difficulty in removing the tick; but by the applying of ammonia, turpentine, kerosene or carbolized vaseline it can usually be detached without trouble.

The disease, considered from a public-health standpoint, is of much greater importance than was thought until recently. On account of its high mortality in the Bitter Root district attention has been focused there, but on investigation the disease was found to be spread over a large area. The mortality, for some unknown reason, is greatly higher in Montana than in the other states. The disease is not much dreaded in Idaho or in Nevada, but the terror it excites in the Bitter Root Valley is

great. If, as seems very probable and almost proved, the tick is the means by which the disease is spread, the question of the prevention of the disease resolves itself into the destruction of the ticks. This is almost an impossible task over such a large area, especially in such varied topography. When conditions will permit, burning the undergrowth and stubble will be an effective method for the destruction of ticks. This may be done either in the early fall or preferably in the early spring, when the ticks are just beginning to move about.

A REPORT OF TWO CASES OF "SPOTTED FEVER."

By Dr. G. A. Gates, Bridger, Mont.

Case 1—On May 29, 1898, I was called to see L. M., at Thermopolis, Wyo. Patient was a male, white, aged 23 years, sandy or red hair, rather spare built; had come from Iowa about three months previous to present attack. He became ill while traveling overland from Lander to Thermopolis, Wyo. Having camped out several nights during the journey, on one or two occasions his bedding became thoroughly wet from the heavy rains of that season.

When first seen patient's face was deeply flushed, eyes bright, skin hot and dry, with a beginning petechia on the forehead, back of hands, wrists and ankles. Headache, thirst, slightly sore throat, and a soreness of muscles and aching throughout the body were complained of by the patient. Temperature 104 deg. F., pulse 120, urine highly colored, no albumin. Complete loss of appetite; no other gastro-intestinal symptoms.

Patient was given small doses of aconite and spirit of nitrous ether and small doses of alcohol until fever was reduced and bowels moved freely.

This was followed by a prescription containing salol, hydrate of chloral, with soda bicarbonate, caffein citrate and pepsin, combined in a powder and given every four or six hours. Patient was sponged with cool or cold water, as needed for high temperature, and placed on a diet of milk, gruel, raw eggs and whiskey.

The fever ran an irregular course, with great variation, reaching at times a temperature of 104.5 deg. F., and again sinking to 97 deg. F. This low temperature was observed during the last of the first week of the disease, at which time patient was in a

state of collapse, being almost pulseless and having a hard chill at the time.

Slight albuminuria appeared during the second week.

Delirium was very slight; patient could be aroused at any time.

Fever gradually subsided after eighteen days.

The petechiae increased in size and number very rapidly during the first two weeks, forming large, irregularly shaped spots from the size of a little finger nail to spots one-half inch in size. These spots darkened in color, becoming bluish, with a surrounding yellow tinge. The spots were slow in disappearing, some traces of them being visible seven months after recovery.

Case 8—Mrs. H., white, aged 67 years, was bitten by a tick May 4 and 8, the tick being removed from the left thigh on May 8, 1903. The species of ticks to which this one belonged is said to have been brought to this section of country by sheep from Bozeman or vicinity. This tick is recognized by having a grayish or whitish spot on the back of the head. The tick which bit patient came from near the mouth of Dry Creek, on the west side of the Clarke Fork River, 7 miles south of Bridger.

Patient first complained of feeling ill on May 9. She complained of headache, tired feeling, general soreness of the muscles and loss of appetite.

I saw patient first May 11. Temperature 103, pulse 104, cheeks flushed, tongue white coat on sides, rather dry. Quite severe headache and tired feeling were the only subjective symptoms. Urine dark; on examination showed slight amount of albumin and some hyaline and granular blood casts and numerous bacteria; the quantity for following twenty-four hours was 32 ounces; the quantity gradually diminished from this time until two days before death, when there was complete anuria. Red and white blood cells, with an enormous number of granular, blood and epithelial casts, were present in last samples of urine obtained.

During 12th and 13th temperature varied from 101 to 103.5 F. On the 14th it rose to 104.4, slowly dropping to 101 on the morning of the 17th, where it remained until death.

Food and medicine were taken well until the last 36 hours. Vomiting occurred once. A number of watery evacuations were produced by the action of elaterium.

Rectal and subcutaneous injections of normal saline solution

were given. The combined use of the above and hot packs, together with hot elder water and liquor ammonii acetatis internally, produced only slight diaphoresis, and that mostly about the head.

On the 15th petechial eruption began to make its appearance upon the buttocks, back and thighs. These increased in number and size until every portion of the body was covered, though but little showing on the face. They seemed to be subcutaneous or intracutaneous extravasations of blood, rapidly darkening in color.

There seemed to be a profound impression on the nervous system from the very first symptoms of the disease. Muttering delirium and a semi-comatose condition, from which the patient could be roused only with much effort, were early and prominent symptoms.

Respiration varied from 30 to 40 per minute throughout the course of the disease and continued until after all signs of heart action had ceased.

Highest pulse rate observed was 186 per minute.

Patient died on the morning of May 19 about 1 a. m.

The case was also seen by Dr. Johnson, of this place, and Dr. Lutz, of Red Lodge, in consultation with me.

Preliminary report upon a zoological investigation into the cause, transmission and source of the so-called Spotted Fever of the Rocky Mountains.

Hygienic Laboratory,
Washington, D. C., July 22, 1904.

The Surgeon-General.

(Through Director Hygienic Laboratory.)

Sir: In accordance with Bureau instructions, dated May 2, 1904, I visited the Bitter Root Valley, Montana, to study the so-called "spotted fever" ("tick fever." "Pyroplasmosis hominis"), from a zoological point of view, and remained in that locality from May 7 to July 6, 1904. In view of the fact that it will require several months for me to prepare my final report upon the work undertaken, I have the honor to transmit herewith a brief summary of the results thus far obtained.

1. I saw 10 cases of this disease and was able to study 9 of them more or less in detail, but I obtained only 1 necropsy.

2. I have been unable to confirm the hypothesis that this spotted fever is caused by a *Pyroplasma*, that it is transmitted by ticks, and that it originates in spermophiles (popularly known as "gophers").

3. Even if it is admitted that a *Piroplasma* occurs in the spermophiles and that I have overlooked it, it seems a priori very improbable, for our present knowledge of this genus, that such a parasite of rodents would develop in man, since Smith was not able to infect sheep with *Piroplasma bigeminum* of cattle.

4. I find rather serious arguments of a zoogeographic nature, against assuming that "spotted fever" originates in spermophiles.

5. The spermophiles in the Bitter Root Valley are frequently infested with fleas and lice, less frequently with ticks, so that even if these rodents harbor a *piroplasma*, the tick is not the only arthropod which must be taken into consideration as the possible intermediate host, although a priori consideration would of course be in favor of the tick.

6. The tick most common in the valley is a *dermacentor* which is very closely allied to *reticulatus*. The data now at my disposal indicate, however, that it represents a distinct species.

7. These ticks are common on horses, cattle and dogs, and more or less frequent on man, but there is nothing to indicate that a hibernating animal is necessary for their development; in fact, indications (seasonal distribution) are not entirely lacking that the spermophile forms a more or less accidental host for this species.

8. I was unable to confirm the view that all cases of "spotted fever" are preceded by tick bites. In five of the ten cases I saw I was unable to establish a history of tick bite.

9. I find rather serious arguments of a zoogeographic as well as of seasonal nature which fail to support the view that ticks from the transmitting agent of "spotted fever."

10. Despite a total of at least 100 hours' microscopic work on fresh blood, taken at various times night and day from nine cases, I have been unable to find any structure which I can interpret as a protozoon. Likewise 100 hours' work on stained blood from 10 cases gave negative results.

11. Certain clinical features of the disease, notably the thick-

ened condition of the blood and the condition of the urine, do not support the view that this disease is due to a Piroplasma.

12. The nervous symptoms noticed this year were greatly in excess of what the published accounts of the disease had led me to expect.

13. Necropsy (1 case) did not show any lesions in the central nervous system which could be interpreted as meningitis.

14. My work is negative, so far as cause, treatment and prevention are concerned; the greater part of my time was, of course, occupied in testing the present theories regarding the disease, and my results are entirely of a destructive nature.

15. The tick theory has caused serious financial loss to the Bitter Root Valley and has produced an effect which in a few cases bordered on hysteria. In justice to the property interests of the valley and the peace of mind of the inhabitants, I think no time should be lost in publishing the statement that the results of study this year have absolutely and totally failed to confirm this hypothesis.

16. I am under numerous obligations to the physicians of the valley, particularly to Dr. J. J. Buckley, for many courtesies extended to me in connection with my work, and I shall look forward with pleasure to acknowledging the indebtedness more in detail in my final report.

CH. WARDELL STILES,
Chief Division of Zoology.

Respectfully forwarded.

M. J. ROSENAU,
Director Hygienic Laboratory.

PART III.

Part III

In the following pages is set forth the communicable diseases reported to this office month by month by the various local and county health officers and conclusions drawn from conditions found to exist.

All health officers are required to make an annual report in the month of October of each year. On the 15th of September I addressed the following letter to each health officer in the state and the replies are included in the following pages:

Office of the
Secretary, State Board of Health.

Helena, Mont., Sept. 15, 1904.

Dear Doctor:

Your annual report is due in October. It will be a great accommodation to this office if you will send it in as early in the month as possible. In order to make these reports as uniform as possible, we would respectfully request that, in your report, you answer the following questions:

1. How has the general health of the people in your district been as compared with that of the previous year?

2. Is the water supply in your district generally good, fair or poor?

3. Have any cases of typhoid fever appeared in your district during the last year. If so, to what source do you attribute it?

4. In your opinion are sanitary measures observed in the small towns and villages in your county?

5. In your opinion, were all cases of communicable diseases that occurred in your district during the year reported to you? If not, what percentage of each of the following diseases was reported—smallpox, diphtheria, scarlet fever and measles?

6. If all cases of communicable diseases were not reported to you, did you make any effort to secure a complete report; have you filed complaint against any one who has failed to report?

7. Have you had any unsanitary conditions abated during the year; if so, how many and of what character?

Any other information regarding sanitation and public health that may be of general interest should be included in this report.

Respectfully,

THOS. D. TUTTLE, M. D.,
Secretary, State Board of Health.

EXTRACTS FROM ANNUAL REPORTS OF HEALTH OFFICERS.

Beaverhead County.

Dillon, Mont., Oct. 20, 1904.

Thos. D. Tuttle, M. D., Secretary Montana State Board of Health, Helena, Mont.

Dear Sir: I herewith respectfully submit my annual report and trust the same covers all required by the Board.

1. The General Health—

The general health in Beaverhead County the present year, as compared with that of last year, is in my opinion much better. While no figures or health reports are available, none seeming to have been kept prior to the incumbency of the present secretary, nevertheless, personal observation and opinions from professional brethren point most conclusively to this fact. We have had no disastrous epidemic of any communicable disease and except in one small almost isolated community there has been an absolute freedom from anything of the nature. Death from communicable diseases has been at the minimum.

2. The Water Supply—

Beaverhead County in general is blessed with an abundance of pure and wholesome water. The only point where any apprehension has been felt in this regard is the city of Dillon, but with the recent installation of a new gravity water system we feel very secure.

3. Typhoid Fever—

A few cases of this disease have appeared during the last year. A striking fact is that over one-half of these cases developed after being in the county but a few days or a week, being imported from adjoining counties or neighboring states. Two or three cases in Dillon from one district of the city were caused by defective drainage and poor well water supply. Physicians are inclined to be rather negligent in reporting typhoid fever and the above is from personal observation rather than official data.

4. Sanitary Measures—

In the towns and villages of the county sanitary measures are generally observed. We have experienced no trouble in this respect. In the city of Dillon a progressive City Council has done much for the city in this matter.

5. Reporting of Communicable Disease—

In my opinion there have been cases of communicable disease not reported to the proper authority. Percentage not reported,

I think, about as follows: Smallpox, 0 per cent; scarlet fever, 25 per cent; diphtheria, 0 percent; measles, 100 per cent.

In the above four communicable diseases the blame of not reporting same does not lie, in one single instance, to a medical practitioner, but as the cases have occurred in communities where no doctor is stationed, or as in one town where the parents, for reasons that I do not know, refused to call the local doctor. Whether the parents or nurses recognized the nature of the disease I do not know, as the facts regarding them came to my ears quite a while after the children had recovered.

6. Efforts to Secure Complete Report of Disease—

Have warned communities where suppressed cases (as above pointed out) that in the future reports **must** be made. Have filed no complaint against any M. D. because I believe that none, in our county, have been derelict in reporting diphtheria, scarlet fever, smallpox or measles, the four principal communicable diseases. In respect to typhoid some cases have not been reported, but this has been, I believe, a purely accidental oversight on their part. I am sure that there will be no future negligence on their part.

7. Sanitary Conditions Abated

The City Council of Dillon, under the direction of the Health Officer, has abated a very large number of unsanitary conditions, about forty-four (44) in number.

8. Report to State Board—

Scarlet fever, 7 cases; diphtheria, 0 cases; smallpox, 3 cases; measles, 0 cases.

The almost absolute exemption of Beaverhead county from communicable disease is largely due, in my opinion, to the splendid and efficient work of the State Board of Health in stamping out disease in all parts of Montana.

Respectfully submitted this 20th day of October, 1904.

T. M. POINDEXTER,

Sec'y Beaverhead County Board of Health.

Broadwater County.

Dr. T. D. Tuttle, Secretary State Board of Health, Helena, Mont.

Dear Sir: Replying to yours of recent date, I will state that the health of the people of Broadwater County is exceptionally good, and for the last six months no infectious or contagious diseases have been reported other than a couple of mild cases of measles, which occurred last May. I have endeavored to secure a report of all cases of infectious diseases within my jurisdiction during the year just closed, and believe I have succeeded fairly well; yet I am convinced that a few cases of mild scarlatina have occurred which were not reported and I had not sufficient evidence to secure convictions for failure to comply with our rules and regulations.

While a few seem to think it an infringement on their personal rights and liberties to enforce our sanitary rules and regulations, yet most of our people lend their hearty co-operation to see them enforced. Quarantine was broken in a case of measles and complaint filed in a justice court, the offender apprehended in Helena by our sheriff, returned to this county and fined. The moral effect in this case has been most salutary.

While the water supply of this section is derived mostly from wells and in town not of a quality to be beyond question, no cases of typhoid or other disease have occurred that could be attributed to it. Contamination of streams used for domestic purposes was stopped in one case. Suppression of a nuisance in the nature of a hog pen maintained in one of our small towns was also stopped.

G. W. GILHAM,
County Health Officer.

Carbon County.

Infectious diseases reported during the year ending September 30, 1904:

53 cases of measles	All recovered.
9 cases of typhoid fever.....	8 recovered.
2 cases of diphtheria	Recovered.
2 cases of scarlatina	Recovered.

From October 1st, 1903, to October 1st, 1904, health of the community excellent.

Answers to questions.

1. Improved.
2. Good.
3. Yes; attributed to spring and well water.
4. Yes.
5. No; no variola in the county during the last year; 100 per cent diphtheria reported; 90 per cent scarlatina; 90 per cent of measles.

6. Yes; had commissioners notify physicians, but received no report from them; filed no complaints.

7. Yes; had two wells condemned.

The sanitary condition of the city is good and all sanitary measures are strictly enforced.

E. T. LUTZ,

Secretary Carbon County Board of Health.

Cascade County.

The report of this county is very full, giving an account of all the meetings of the board of health in detail. The report concludes as follows: "During the last year there have been reported the following number of contagious cases:

"Scarlet fever18

"Diphtheria52

"Measles54

"An increase over the previous year in the cases of diphtheria and measles and a decrease in the number of cases of scarlet fever; and no cases of smallpox, whereas in 1903 there were reported 19 cases.

"No cases of tuberculosis or typhoid fever have been reported during the past year, nor have I been able to learn that there have been any unreported cases of the two last named diseases.

"There have been undoubtedly some 40 or 50 unreported cases of measles in the county in the last year, scattered here and there in remote sections and learned of indirectly.

"The water supply in this county is fair at least, perhaps good, considering the dry year and the fact that no typhoid has appeared.

"The hardest work in this district is to get any observation of the sanitary rules in the small villages; this has been my hardest work, and then has not been done at all satisfactory, but the best that was possible with the money at hand. Have had much cleaning up done in all of the towns in the county;

wells cleaned, water reservoir for city water for Cascade cleaned, hogs removed when too close to residences or water supply, dead animals removed or cremated in the vicinity of Stockett and Sand Coulee. Little Chicago was thoroughly cleaned and the health of the people speaks well for the effect of such cleaning.

"No complaints have been filed for non-report of communicable diseases as I think all have been reported **except** the measles above mentioned."

CHAS. T. SWEENEY,
Secretary.

Chouteau County.

The health officer of Chouteau County reports three cases of smallpox and four cases of typhoid fever, but fails to make any statement regarding the sanitary conditions in his county or to answer any of the questions asked in the letter mentioned above.

Custer County.

The health officer of Custer County submits a very complete tabulated statement of all cases of communicable diseases reported to him during the year, but fails to answer any of the questions, or to make any statement regarding the sanitary condition in his county.

Dawson County.

Meeting of Dawson County Board of Health at Courthouse, Glendive. Called to order by Chairman J. A. Morton.

Present, J. A. Morton, A. M. Baird, J. Martitn and Dr. R. E. Hathaway, secretary.

The secretary submitted the following report of dangerous communicable diseases for the period of Oct. 1st, 1903, to Oct. 1st, 1904:

Diphtheria	1
Scarlet fever	4
Typhoid fever	5
Smallpox	6
Measles	9

It is estimated that 17 unsanitary conditionss and nuisances in the nature of offensive rubbish, dead animals and infected wells were abated during the year.

Upon discussion, the board drew the following conclusions:

1. That the sanitary condition and health of the county are better than in 1903.
2. That the water supply of the county is fair.
3. That the source of the typhoid fever cases is unknown to the board.
4. That 33 1-3 per cent of the communicable diseases occurring in the county during the passed year were not reported to the board of health.

R. E. HATHAWAY,
Secretary.

Deer Lodge County

No report has ever been received at this office from any health officer of Deer Lodge County nor from the health officer of the city of Anaconda.

Fergus County.

Lewistown, Mont., Oct. 1, 1904.

T. D. Tuttle, M. D., Helena, Mont.

Dear Sir: I send herewith my annual report for the year ending October 1st, 1904. It is necessarily imperfect, as it is impossible to make the average practitioner understand what is required, but I have done the best I can. Answering your questions:

1. Not so good as it was last year. (This may be due to reports being made more carefully.)
2. The water supply in country districts is generally good. That of the towns and villages is not so good; Lewistown bad.
3. Yes; five cases, or rather five cases have been reported. No. 109 was reported after recovery, and I know nothing about it. No. 119, and found that it was not typhoid. No. 148. Typhoid occurred at Judith, the same place as last year. On investigation I can find no other cause than perhaps the drainage from Great Falls, as they use water from the Missouri river.
4. No; the incorporated towns assume to manage their own affairs and are very lax in regard to such matters. And in the country parts of the district the law is violated continually with impunity, as it is impossible to enforce the law.
5. So far as I know, all cases of communicable diseases were

reported to me. There may have been quite a number of measles cases that were not reported. Cannot say with certainty.

6. I know of no one failing to report communicable disease.

7. I tried ineffectually to abate one unsanitary condition (a very grave one), and wrote to you for advice in the matter, and your reply stated that the matter was in the hands of the County Commissioners, and they for obvious reasons did nothing. I refer to the contamination of the water of the stream running through the town, by sewage and dumping of offal into it.

Very respectfully,

H. H. WILSON, M. D.

Flathead County.

To the State Board of Health, Dr. Thos. D. Tuttle, Secretary.

Flathead County Board of Health reports a much better condition of health of people than during 1903. This board was organized on March 29th, 1903, and the following table gives the number of cases of contagious and infectious diseases for the six months of 1903, and twelve months of the past year:

1903.		1903-1904.	
Six Months—March 29 to Oct. 1.		Twelve Months—Oct. 1 to Oct. 1.	
Measles	7	Measles	19
Typhoid	12	Typhoid	23
Scarlatina	63	Scarlatina	4
Smallpox	10	Smallpox	8
Diphtheria	1	Diphtheria	3
Tuberculosis	2	Tuberculosis	3

Ninety-four cases for six months the first year and sixty cases for twelve months of the past year. Smallpox has occurred only in sporadic cases and most of those contracted the disease outside of Flathead county.

Only four cases of scarlatina for the year, against sixty-three for six months, shows that strict quarantine will do away with contagious or communicable diseases.

In general the water supply in this valley is good. Though rainfall has been practically nothing for months, the streams have carried a good volume of pure water.

We have had about double the number of typhoids, but as near as can be learned they have been people who have been using water from wells where there is a possibility of surface drainage into them.

During the nine years of the secretary's residence in this

section of Montana, I have noticed that typhoid is much more prevalent during our seasons affected by drought.

The sanitary conditions of small villages are satisfactory and rules are generally enforced.

We believe that all cases of scarlatina, smallpox and diphtheria have been reported to the board, but have reason to think that measles and typhoid reports are not complete. Some of the physicians do not always report typhoid, and many parents will not call physicians for measles, and keep quiet about having the disease in the family.

The board has frequently called the attention of the physicians to the law, but no complaints have been filed against anyone.

The only sanitary conditions that it has been necessary for the board to act upon was in causing the location of three small slaughter houses to be removed to such places that they would not be a menace to the health of the public.

We have had to see to it in a number of instances that carcasses of horses and cattle were not hauled to banks of streams and left for high water to carry them away, but have insisted on their burial. Respectfully,

MORRIS W. BOTTORF,
Secretary Flathead County Board of Health.

Gallatin County.

Bozeman, Mont., Oct. 4, 1904.

Dr. T. D. Tuttle, Helena, Mont.

Sir: I have the honor to submit the following report as secretary of the Board of Health of Gallatin County:

There have been reported to me three cases of smallpox, one case of diphtheria, three cases of typhoid fever.

There have been no deaths from contagious diseases since my last annual report.

Scarlet fever has been absent from this district.

Diphtheria has been absent from this district.

Measles are not reported as they should be. Sanitary regulations are generally observed.

I have no specific knowledge of non-report of contagious diseases outside of the city of Bozeman, where there is another health officer.

The public health is in better condition than it was last year,

as during the same period covered by this report there were 13 cases of scarlet fever, three of typhoid and one of diphtheria.

Yours truly,

(Signed)

L. E. SAFLEY, Secretary.

Granite County.

Philipsburg, Mont., October 1st, 1904.

Dr. Thos. D. Tuttle, Secretary State Board of Health, Helena, Mont.

Dear Doctor: I beg leave to submit the following report as secretary of the board of health for Granite county for the year ending September 30th, 1904:

No. of quarantines established for scarlet fever, three; No. of quarantines established for smallpox, none; No. of quarantines established for measles, none; No. of quarantines established for diphtheria, none.

One case of typhoid fever during the year; source of infection, unable to ascertain. Aside from the cases of scarlet fever the health of the district has been better than last year.

Water supply of district very good.

Sanitary measures in small villages carried out fairly well.

All cases of communicable diseases not reported, as two cases of scarlet fever came to my knowledge which were not reported. They were mild and no physician called.

I have made efforts to obtain complete report, so far as I am able to ascertain, there were five cases of scarlet fever in the district.

No complaints were filed against persons not reporting.

Have had seven cases of unsanitary condition abated, all in the towns of Philipsburg and Granite, consisting of piles of manure and garbage.

On the whole, the health of the district has been excellent as compared with previous years.

Respectfully submitted,

W. I. POWER, M. D.,

Secretary Board of Health, Granite County, Mont.

Jefferson County.

Boulder, Mont., Oct. 30, 1904.

Dr. Thos. D. Tuttle, Secretary State Board of Health, Helena, Mont.

Dear Sir: I hereby submit my annual report as secretary of the Board of Health of Jefferson County.

Diphtheria, one case (died); smallpox, two cases (recovered).

No other cases of communicable diseases have been reported during the year.

The water supply of this district is generally very good.

No cases of typhoid fever have appeared in the county during the year.

Sanitary measures are pretty generally carried out throughout the county.

I believe that all cases of communicable diseases are reported to the health officer. Whenever any cases are heard of that the attending physician has failed to report, the report has been asked for and furnished.

I had one man arrested during the year for maintaining a nuisance, by keeping a pigpen within 200 feet of a schoolhouse. He was first given warning to move it, and on failure to do so, was prosecuted. During the spring I also visited several towns and enforced the cleaning up of garbage. Respectfully,

A. L. WARD,

Secretary Board of Health, Jefferson County.

Lewis and Clarke County.

T. D. Tuttle, M. D., Secretary Montana State Board of Health.

Sir: I hereby submit my report as health officer of Lewis and Clarke County, Mont., for the past year:

During the past year the following cases of contagious diseases have been reported:

Five cases of diphtheria, three occurring at Birdseye, two at the Crittenton Home.

Two cases of scarlet fever occurring at East Helena, while during the years 1903-04 the following cases have been reported:

Five cases of scarlet fever occurring at East Helena.

One case of chicken-pox occurring at Augusta.

Two cases smallpox, one at Fort Harrison and one at Stubbs Ferry.

One case of typhoid fever in the Prickley Pear Valley.

The water supply during the past year has been fairly good.

I have, as secretary of the County Board of Health, visited the streams of Ten Mile and Seven Mile creeks and particularly investigated the sewage running into said creeks from Fort Harrison, Kessler's Brewery and Mares Brothers' slaughter house, and found them to be polluting Seven Mile and Ten Mile creeks, which fact was brought to the attention of the County Board of Health by petition of Herman Brass. This matter, however, has not been fully disposed of by the board.

The secretary, together with Mr. Cory, a member of the County Board of Health, visited the town of Rimini and found the sanitary conditions there to be greatly improved. Found only two nuisances of minor importance, which were ordered immediately abated, and which, I believe, has been done.

The sewage from the County Hospital will soon be taken care of in what is known as the sceptic tank, which will do away with the liability of the spread of contagious or infectious diseases from that source.

There have been no cases of typhoid reported to me during the past year.

It appears to me that the sanitary conditions in the smaller towns in this district is considerably improved, notably at Rimini.

I believe it to be the disposition of the physicians in this community to report their cases to the board, although in the early part of the year there appeared to be some misunderstanding as to whether or not they should report to the County or State Board of Health. There have been no complaints filed against any physician for neglecting any section of the board of health law.

I went to Marysville on November 16th, to investigate the cases of sore throat that is now prevalent in Marysville, and while I saw several cases and had a supply of culture tubes, I saw nothing that had the slightest resemblance to diphtheria. I also received letters from the two doctors now practicing in Marysville stating that they have not had any cases of diphtheria in their practice during the past year, and they both assured me of their sympathy with the board and I am sure there would

be no neglect on their part if diphtheria should become prevalent in that locality.

All of which is respectfully submitted,

B. C. BROOKE,

Secretary Lewis and Clarke County Board of Health.
Helena, Mont., Nov. 18, 1904.

City of Helena.

Helena, Mont., October 4th, 1904.

Report of Health Department, Helena, Mont., for the year ending September 30th, 1904:

Reported cases of contagious diseases for the years 1903 and 1904.

Diseases.	—1903—		—1904—	
	Cases.	Deaths.	Cases.	Deaths.
Smallpox	29	0	1	0
Measles	10	0	102	0
Scarlet fever	156	6	38	0
Diphtheria	2	0	21	3
Typhoid fever	7	1	11	2
Totals	205	7	178	5

Seven cases of typhoid fever reported this year were transient, brought to the city for treatment.

It is my belief that all cases of contagious diseases were reported, with the probable exception of some light cases of measles, where a physician was not called.

Numerous complaints and premises were investigated, and nuisances, including garbage, privies, sewage, etc., abated.

The city water has been tested, and pronounced good, and I consider that the city has been in a much better sanitary condition this year than for many years previous.

There was only one case of contagious disease reported between June 28 and Sept. 20, 1904.

I believe the large decrease in contagious diseases, especially scarlet fever, is largely due to extending the time of quarantine from three weeks to four weeks by the State Board of Health, and to the disinfecting of the school buildings.

Respectfully,

JOHN S. TOOKER,

Secretary Helena Board of Health.

Madison County.

No report has been received from the county health officer of Madison county.

Meagher County.

No report has been received from this county. This is accounted for by the fact that the health officer resigned and left the county about the first of September and left no records from which the present health officer could make a report.

Missoula County.

Missoula, Mont., Sept. 30, 1904.

Dr. T. D. Tuttle, Helena, Mont.

Dear Sir: The general health of the city and county of Missoula has been greatly improved in the last year, especially as regards typhoid fever, due to cleaning up manure piles, etc., in alleys and yards.

Water supply is excellent.

Two cases of typhoid only originated in city, as against a great many last year.

Small towns enforce rules as far as I can find (sent each list of instructions in spring).

All cases reported except tuberculosis. (Believe special blanks would be effectual.)

Have filed no complaints.

General cleaning up of alleys and yards in city. Visited Trout Creek to investigate typhoid fever. May have come from water on train from Hope, Idaho. Had reservoir cleaned.

There were twelve spotted fever cases here this season, only two were reported as recovered. Some of them came from Ravalli county, one from Harvey Creek, six miles east of Quigby, parallel with Rock Creek, where a few cases have occurred.

CHAS. PIXLEY, M. D.,

Secretary Missoula County Board of Health.

Park County.

Annual report of the Park County Board of Health, October 1, 1904.

1. The health of Park County in regard to communicable diseases has, with the exception of the epidemic of measles, been

about the same as the previous year. The comparative number of cases are about as follows:

	1903.	—1904—	
	Reported.	Reported.	Estimated.
Smallpox	10	0	0
Scarlet Fever	1	1	0
Diphtheria	4	7	0
Measles	6	107	180
Chicken-pox	2	7	10 or 12
Typhoid fever	3	23	25
Tuberculosis	1	1	4

The measles epidemic was started by two railway trainmen who had the disease in a public building and were not discovered until they were nearly over with it.

2. The water supply is generally good.

3. We have had 23 cases reported during the year, probably one-half have contracted the disease abroad, several from Red Lodge. Of the cases having the disease since June 1st of this year, six contracted it abroad and ten in Livingston, and all but one of the ten lived in houses that had city water, but whether they drank from wells and springs (of which there are a number in Riverside Addition, nearly all of which the possessors declare to be the purest water in existence, although the gravel and sand above make it uncertain whose privy vault it may be derived from). Their milk supply was well distributed among the four or five milkmen doing business here, so I hardly think that can be a source of infection and am at a loss to account for the epidemic.

4. Sanitary measures I think have been better enforced in the small towns and rural districts than previously, as no effort at all was made before.

The accompanying two circulars I have had printed and sent No. 1 to school clerks and teachers volunteering the examination of eyes for pupils.

Notice to Clerks of School Districts.

To the Clerk of School District No. . . .

Dear Sir: The Park County Board of Health, at its regular semi-annual meeting May 31, 1904, made the following regulations concerning the sanitary arrangements and sanitation of public school buildings used for school purposes. And the Board insist that the school trustees make such changes as are required to conform to the regulations.

1. All school buildings being built or which may hereafter be

built must be provided with the modern system of ventilation, viz: A ventilator system must be placed on each side of school room. Each system should contain two ventilators, placed side by side in the wall on the level with the floor, the one opening near the ground (intake tube) and the other opening above the roof. Or where it can be done we would advise that the system be installed.

2. The ceilings of all schools being built or which may hereafter be built must be 10 feet high.

3. The light of all school rooms must come from the sides of the rooms and not from the front or rear of room. And shades for windows should be preferably green or blue and should never be yellow or red.

4. All closets must be so placed that they are not contiguous to or would contaminate the drinking water supply.

5. It is also suggested that the teacher observe any scholar who may have trouble with their eyes and suggest to the parents or guardian of the same that they have their eyes examined by a competent oculist or physician, and that the defect be remedied if possible.

By order of the County Board of Health.

F. A. KRIEGER, Chairman,

S. E. LEARD, Secretary.

Rural Sanitation.

M.....

The following rules as to sanitation in rural districts are in force, and we ask that you see that they are observed in your community. If any of the regulations are violated we would consider it a favor to have same reported to this office with name and address of offending party or point of violation.

1. No closets are allowed to be placed over running streams. No pig pens, stables or manure yards, garbage heaps or other sources of filth are permitted to be placed contiguous to running waters, and no filth of any kind from the above-named or other sources are permitted to be thrown in such streams to contaminate such stream.

2. All dead animals shall be disposed of either by burying or burning, especially those contiguous to the public highways. A very good plan to dispose of carcasses which have become offensive is to place wood around carcass and saturate wood and carcass with kerosene oil and set fire to same.

3. Drinking water supply should be investigated in all cases as to its source, whether it is free from pollution.

By order of the County Board of Health.

F. A. KRIEGER, Chairman.

S. E. LEARD, Secretary.

No. 2 I sent to the rurals when complaint was made and a "hint to the wise is sufficient."

5. Yes; all but measles and chicken-pox, of which over 40 per cent, I think, were not reported.

6. I did; the doctors reported, but individuals did not; I filed no complaints.

7. Have abated three unsanitary conditions; three kinds, I mean. Dead animals, privys over running waters, and garbage removal.

We are without a meat or milk inspector in this county. I think if we had such an officer it might prevent actinomycotic animals wandering over the range among other animals, as I have seen personally. He could also keep an eye on the rural sanitation while going over the county. A standard should also be established as regards percentage of fats in milk sold by milkmen as well as its regular inspection.

We have had a City Health Board in Livingston since June 1st, but they have done little or nothing in the way of sanitation except to have dead animals removed and when forced to, have garbage removed as per ordinance. They have kept a very uncertain register of infectious diseases.

Respectfully submitted,

S. E. LEARD,

Secretary Park County Board of Health.

Powell County.

The health officer of Powell County reports two cases of measles and one of diphtheria, but fails to answer any of the questions or to make any statement regarding the sanitary conditions in his county.

Ravalli County

No report has been received from Ravalli County.

Rosebud County.

Forsyth, Mont., October 11, 1904.

Annual report of County Health Office.

Question 1. General health of the people in Rosebud county compared with previous year very much improved. One exception, viz: An outbreak of smallpox during the winter of 1903-04, since which no further cases.

Question 2. Water supply fair; best we can do under the "well" system. By giving attention to the cleanliness and proper sanitary conditions of these wells, we have fairly good water.

Question 3. Have had none since my term of office began. Prior to that there were some cases caused by bad water supply, which has since been corrected so far as possible.

Question 4. Sanitary measures enforced in small towns and villages as well as possible.

Question 5. Believe all cases of communicable diseases were duly reported. County small, also population, and cases easily known.

Question 6. Reports being fully made; no complaints made.

Question 7. Several unsanitary conditions abated, to-wit: Saloon-keepers, boarding-house keepers and restaurant proprietors throwing out their slops and garbage in alleys; also these people required to keep their back yards clean and remove all accumulations of filth, vegetable and animal matter. Strict quarantine kept on all suspicious cases of disease or illness. Wells kept in cleaner condition than formerly. Water tanks along line of railroad required to be cleaned and flushed more frequently.

(Signed)

A. C. WILSON, M. D.,
Secretary Board of Health, Rosebud County.

Silver Bow County.

Butte, Mont., Oct. 24, 1904.

Dr. Thos. D. Tuttle, Helena, Mont.

Dear Doctor: Please find enclosed the annual health report of Silver Bow County ending October 1, 1904.

Answer 1. The health of the people in this district compared with that of the previous year, especially regarding communicable diseases, is best shown in the following:

(a) Scarlet fever—Oct. 1, 1902 to Oct. 1, 1903, 38 cases; Oct. 1, 1903, to Oct. 1, 1904, 14 cases.

(b) Diphtheria—Oct. 1, 1902 to Oct. 1, 1903, 25 cases; Oct. 1, 1903 to Oct. 1, 1904, 39 cases.

(c) Smallpox—Oct. 1, 1902 to Oct. 1, 1903, 6 cases; Oct. 1, 1903 to Oct. 1, 1904, 26 cases.

(d) Chicken-pox—Only two cases reported during the year. There has been no previous record kept of this disease by former health officers of this county.

(e) Typhoid fever—One case reported in Wlakerville. There has been no record kept of this disease by former health officers of this county. Don't know the source of infection in this case. The water supply of Wakerville is very good.

(f) Measles—There has been no record kept of the disease by former health officers of this county and so cannot compare this disease of this year with it during past years. We have quarantined and fumigated 12 cases in the last six months.

Answer 2. The water supply of Butte, Centerville, Walkerville and Meaderville is very good. It is supplied by the Butte Water Company from the twelve-mile reservoir and from the Big Hole River; Walkerville from the Moulton reservoir. (During the summer months the water had a bad odor and taste, due to a growth of a species of Algae, but no pathogenic germs were found and no disease directly traceable to the water.) Some of the outlying districts use well water to a greater or lesser extent and I wonder at the good health in some of these districts, as the wells, cesspools and vaults are well "mixed" in together. I should advise that in certain districts, as Silver Bow Park, for example, where city water can easily be obtained, that all wells near cesspools and vaults be condemned.

Answer 3. Typhoid fever, one case reported outside of Butte City limits. See under answer 1 (e).

Answer 4. Sanitary measures are fairly well enforced in this district, as shown by the following report of the Sanitary Inspector, Mr. John Kelly, as follows:

To the Hon. Board of Health of Silver Bow County.

Gentlemen: I herewith submit the following report for sanitary work done during the past five months in the county:

500 feet storm sewer in Buffalo Gulch.

1085 feet storm sewer in Green Mountain Gulch.

500 feet storm sewer in Duggan avenue.

300 feet storm sewer in Jim Gulch (Dublin Gulch).

500 feet 12-inch box in Kemper avenue.

300 feet storm sewer in Boardman avenue.

300 feet storm sewer in Alaska avenue.

200 feet storm sewer in Pearl avenue.

200 feet storm sewer in Meaderville.

Cost of labor for sewer, \$2,600; cost of lumber for sewer, \$1,018.69; cost of removing manure and garbage from alleys and highways in Missoula avenue, East and West Centerville, Clear Grit Terrace, Cork Town and Meaderville, \$600. A large amount has also been spent for care of infectious and contagious diseases. Notices served during the past five months for cleaning yards, alleys and vaults number 400. The above mentioned storm sewer and box sewers have done much to improve the sanitary conditions in certain districts. In this district there are no more stagnant pools and mud puddles, no odor or filth. The Health Department of Silver Bow County has done a good work by building the above-named sewers, and the present board will continue its very active work in this regard and in all others for good "sanitation."

Note—I have made no report of sanitary conditions on work from Melrose or the Divide districts.

Answer 5. I think that in cases of communicable diseases, which come under the care of the physicians of this district, that they are as a whole fairly well reported, especially in cases of smallpox, diphtheria and scarlet fever. In cases of typhoid fever, measles and chicken-pox I think it is not generally understood by the profession that these cases are to be reported, with the same care; however, this Board of Health intends to enforce these reports in the future.

Answer 6. Where the report was tardy or in the least obscure or not clear, the case was always looked up by myself, or by the sanitary inspector. Have as yet not filed any complaint against any one.

Answer 7. See under general sanitary improvement under answer 4.

Additional Notes—The last year's record shows smallpox to be greatly on the increase in this district. There is one case already reported this month (October). I would recommend that all the school children in the City of Butte and outlying districts be vaccinated. It would be well for both the City and County

Boards of Health to take active measures in this regard. This is especially necessary, as the population of Butte and districts is, we might say, a very transient one and besides such measures have not been recommended or carried out for four years.

Will state in closing this report that the policy of the Silver Bow County Board of Health is to do their duty as nearly right as possible and in accordance with the rules and regulations of the State Board of Health, and at the same time to be most active to aid and build up the sanitary condition of this county. The money this board has expended for good sanitation has been well spent and with very good results.

Respectfully yours,

R. S. FREUND,
Secretary Silver Bow County Board of Health.

City of Butte.

Butte, Mont., Oct. 22, 1904.

Dr. T. D. Tuttle, Secretary of State Board of Health, Helena, Mont.

Dear Sir: In answer to your questions of September 15th, I beg to reply as follows:

Q.—How has the general health of the people in your district been compared with the previous year, especially as regards communicable diseases?

A.—The general health of the people of this city for the year ending October 1st, 1904, has been much better than during the year ending October 1st, 1903. While the death rate of the city and county has not been greatly lessened, there has been a great difference in the amount and fatality of our principal contagious diseases, scarlet fever and diphtheria. We have had ten cases of scarlet fever, with no mortality, during the past year, compared with 164 cases and six deaths for the year preceding. For this great decrease in the number of cases of this malignant and extremely contagious disease, the health department feels entitled to considerable credit. The city was infected at four different times during the past year by cases brought from other localities, but by rigid quarantine and thorough disinfection the disease was stamped out with the small total of ten cases. Owing to the fact that in the interest of public protection, physicians have reported all suspicious cases of sore throat as diphtheria,

our record shows 86 reports of this contagious disease this year, against 57 for the year preceding. But on the other hand, due doubtless to the increased use of anti-toxin, the mortality has been reduced from 9.5 per cent last year to 2.8 per cent for year ending October 1st, 1904.

We have had practically the same amount of smallpox of a mild type as the year previous, with no deaths in either period. Seventy-three cases of measles were reported this year, all since May 1st, with which no comparison can be made, as the law was not enforced up to that time.

Q.—Is the water supply in your district generally good, fair or poor?

A.—The water supply of this district is generally good. The only complaints received have been of a disagreeable taste and odor, caused by the growth of algae during the summer months. As far as is known, the water supply of the district is absolutely free from pathogenic germs.

Q.—Have you had any cases of typhoid fever appear in your district during the year? If so, to what source do you attribute them?

A.—There were four deaths from typhoid fever during the past year, against eight from same cause the preceding year. There has been no epidemic and no general cause to which the disease could be attributed, the cases occurring in widely separated parts of the city.

Q.—In your opinion, were all cases of communicable diseases reported to you? If not, what percentage of the following diseases do you think were reported: Smallpox, diphtheria, scarlet fever and measles.

A.—There is every reason to believe that the physicians engaged have, with one exception, reported every case of smallpox, diphtheria and scarlet fever to the health office, and that they have also reported, with one exception, all of their cases of measles since May 1st, when the measles ordinance went into effect.

The health office has been greatly aided in obtaining information of contagious diseases by the school authorities, and particularly by the truant officer, who investigates all cases of absence from school, and who reports all suspicious cases to the health department.

Q.—If all cases of communicable diseases were not reported,

did you make any efforts to secure a complete report? Did you file complaint against any for failure to report?

A.—As far as is known to the health department, there are but two instances in which physicians failed to report, one a case of diphtheria and the other a case of measles. Both physicians were arrested, convicted and fined.

Q.—Have you had any unsanitary conditions abated? If so, how many and of what character?

A.—Many unsanitary conditions were abated in the course of the routine work of the department. A special case was the condemnation of several ice ponds under the new ordinance requiring the registration and examination by the health officer of all ice ponds before the ice is put on the market. During the past summer the health department waged a vigorous campaign against the use of unwholesome fruit, during which four tons of canteloupes were destroyed at the crematory; and as a result, the fruit dealers and commission men of the city are now carefully sorting their fruits and voluntarily sending the decayed portion to the city dump. A large portion of what now goes to the crematory was formerly sold to peddlers and retailed on the streets. The meat markets of the city are now in better condition than ever before, all spoiled meat going promptly to the garbage barrel, and the shops are altogether in a good sanitary condition. The milk supply of the city is steadily improving, as the result of a rigorous inspection by both city and state officers.

Replying to your request for general information:

During the past year the city health ordinance has been twice amended, and finally replaced by an entire new ordinance, framed on modern, comprehensive and effective lines. An ordinance has also been adopted providing for the municipal collection of garbage from private residences. This ordinance will go into effect as soon as the special garbage wagons purchased by the city are delivered, and will go far to promote sanitary conditions.

The sanitary sewer lines constructed this year amount to 4,390 feet, making in all over 23 miles of sanitary sewer in use in the city.

During the past year 170 cultures were taken in diphtheria cases. Because many physicians object to the extra trouble of taking a culture and delivering it to the health department, and because a few could not be trusted to take an honest culture, this part of the work has been done entirely by the city physician.

He has also bought an incubator and maintained it at his own expense, and has made duplicate cultures in nearly all cases sent to the state bacteriologist.

One thousand one hundred and eighty-seven rooms were disinfected by the city health department, and so far as known there has been no recurrence of disease as the result of defective fumigation. The agents used was formaldehyde, and the quantity very liberal. The Novy generator was used, but the oil burner provided with the apparatus was replaced by a gasoline burner, which, producing a much hotter flame, evaporates the formaldehyde very rapidly and greatly increases its efficiency.

Because of the extremely mild type of smallpox prevailing in this state for the past two years, there has been little vaccinating done, and we may soon expect another extensive and expensive epidemic. If the state of Montana will take the lead in providing free vaccination at all times and places, and absolutely refuse to open pesthouses or in any way help those who prefer to be victims of their own ignorance, stubbornness or fanaticism, she will inaugurate the most efficient movement toward ridding the earth of this disgusting, entirely preventable and wilfully fostered disease.

Another remedy which should be provided by state authority is diphtheria anti-toxine. This great preventative should be provided free of charge to the individual, and its use made compulsory in every case of exposure to the disease, even to the extent of immunizing an entire school where this scourge has made its appearance. The saving of even one life would far more than repay the cost of freeing the entire state from the ravages of this destroyer of childhood. Yours respectfully,

T. J. SULLIVAN, M. D.,
Health Officer.

Sweetgrass County.

Answers to queries in communication of Sept. 15, 1904.

1. So far as I can say, according to the official record, the number of cases this year is far in excess of last. The record book shows only three cases of scarlet fever and two of smallpox. I feel certain the former is inaccurate. I can recall to mind many more cases than the record shows.

During the hot months this year the children in this county

suffered greatly from digestive troubles. Those diseases were much more prevalent the past summer than any previous summer during my experience.

I had the sad misfortune of being called to treat three cases of cholera infantum—the first cases since I came to Montana. Two out of the three proved fatal. The two were really dying when I first saw them, the people being ignorant of the trouble.

2. The water supply is generally good. In Big Timber a few of the wells are no doubt contaminated, owing to the porous condition of the soil, close proximity to a well of a privy vault, offers great chances for pollution of the waters. Surface seepage is also another danger, where filth is allowed near the well.

I fear an outbreak of typhoid fever here at most any time. I mean in this city.

3. Only one case of typhoid fever. The young man was a herder and often drank from a stagnant pool where sheep, cattle and horses drank also and waded into it.

4. Yes; we watch conditions in this city very closely. No other villages to speak of.

5. Scarlet fever is not always reported and where not, the people are ignorant of the true nature of the disease; 85 per cent or 90 per cent of all cases are reported.

6. I endeavored to secure a record of all cases. Where a physician was called I always received a report.

No complaints filed.

7. Eleven unsanitary conditions were abated during the past three months, my period as health officer. Cleaning alleys and back yards, removing dead animals and disinfecting privy vaults.

Teton County.

Chouteau, Mont., Oct. 4th, 1904.

Dr. T. D. Tuttle, Helena, Mont.

Sir: The County Board of Health met October 1st and I beg to report our county in good condition. Sanitary condition much improved. General cleanup orders have been observed in the several villages. No typhoid this season. All cases of communicable diseases were reported so far as I can learn. County entirely clear at present.

T. BROOKS,

Secretary Teton County Board of Health.

Valley County.

Glasgow, Mont., October 2, 1904.

Thos. D. Tuttle, M. D., Secretary Montana State Board of Health, Helena, Mont.

Dear Doctor: I herewith submit my annual report as secretary of the Board of Health of Valley County.

During the past twelve months Valley County has been remarkably free from communicable diseases. The smallpox epidemic that for a time threatened to bankrupt the county, has been stamped out, there having been but eight cases during the year.

There have been seven cases of scarlet fever and two cases of diphtheria, but in each instance the disease was confined to one house and the source of the infection traced to causes remote from this section.

The typhoid situation is not so good. Eighteen cases have been reported, fifteen of which came from Malta during August and September. An investigation of the water supply has been ordered by the county board and a vigorous effort will be made to ascertain the cause and, if possible, remedy the evil.

The county board has given me a free hand in matters of quarantine, and in every possible way have sought to stamp out any contagious disease brought to their notice.

Respectfully submitted,

MARK D. HOYT, M. D.,
Secretary Valley County Board of Health.

Yellowstone County.

Billings, Mont., Oct. 15, 1904.

To the Secretary, State Board of Health, Helena, Mont.

Dear Sir: I have the honor to make the following report for the past year:

The health of the county has been exceptionally good. We have been remarkably free from contagious diseases of all description.

There have been no cases of diphtheria, scarlatina, only one of smallpox and two of measles. One case of typhoid fever (not contracted here) and one of tuberculosis (died three days ago).

As compared with last year the health of the county has been remarkably better.

Our water supply is derived direct from the Yellowstone river and it is remarkably good.

In the small towns the sanitary conditions have been excellent.

As far as we can learn all cases of communicable diseases have been reported. All physicians have been notified that failure to report will be promptly prosecuted.

Stables and pigpens along irrigating ditches and near wells on ranches have been attended to, and where contiguous to water supply, have been removed. No difficulty in having it done was experienced.

Some legislation should be had regarding health boards in incorporated cities. In this city the council has a "health committee" whose duties are not prescribed. No city health officer and apparently, under the law, no authority on part of county board, to enforce any health regulations in a city.

The county health officer cannot enforce any health measures in a city as he is only secretary of board and the board has to convene to order any immediate health measures, and with only one member of board residing here and the others 50 and 60 miles away, it is uphill work.

However, I must say that any suggestions to the City Street Commissioner made by me regarding nuisances, etc., are courteously received by him and promptly attended to. Our city is exceedingly clean and free from nuisances. We have a splendid sewage system, which is being constantly flushed.

Before the fall sessions of the schools began they were thoroughly disinfected with formaldehyde and furniture and floors were scrubbed with antiseptic solutions. The school board deserves great credit for pains taken by them in this direction.

Alleys are cleaned up every two weeks and oftener if necessary, under the direction of Street Commissioner, who is a very efficient and excellent officer; in fact, is a whole board of health himself, taking particular pains in that direction.

Trusting we may be able to report as favorable condition of affairs next year, I remain,

JOSEPH H. RINEHART, M. D.,
Secretary Board of Health, Yellowstone County.

COMMUNICABLE DISEASES REPORTED TO THE STATE BOARD OF HEALTH.

In the following tables we have set forth the various communicable diseases reported to this board. The figures for 1901 and 1902 are taken from the first biennial report, the figures for 1903 are for the six months ending December the first, the records for the first six months of the year being in such shape that it is impossible to make use of them for this purpose. The figures for 1904 are complete, with the exception of Deer Lodge County, from where we have been unable to get any report whatever.

Smallpox.

COUNTY	1901	1902	1903	1904	Vaccinated ..	Not Vaccinated
Beaverhead	*	*	2	2	.....	2
Broadwater	*	80	.....	.....	.....	.....
Carbo .....	*	*	.....	.....	.....	.....
Cascade	2	14	2	1	.....	1
Chouteau	*	20	2	9	1	8
Custer .....	*	*	.....	8	.....	8
Dawson	*	*	15	.....	.....	.....
Deer Lodge.....	*	*	*	*	*	*
Fergus	*	52	.....	20	1	19
Flathead	*	171	10	18	1	17
Gallatin	*	27	.....	4	.....	4
Granite .....	*	*	*	.....	.....	.....
Jefferson .....	*	*	.....	2	.....	2
Lewis and Clarke.....	*	20	2	1	.....	1
Madison	2	16	.....	1	.....	1
Meagher	*	5	.....	.....	.....	.....
Missoula	1	*	14	2	.....	2
Park	8	*	2	.....	.....	.....
Powell .....	*	*	.....	.....	.....	.....
Ravalli	10	180	.....	.....	.....	.....
Rosebud .....	*	*	.....	14	1	13
Silver Bow	8	85	9	27	2	25
Sweet Grass	*	29	4	.....	.....	.....
Teton	*	9	5	4	.....	4
Valley	*	*	1	5	1	4
Yellowstone	6	48	10	4	.....	4
Totals	37	764	78	122	7	115

* No report received.

The figures regarding vaccination refer to those cases reported during 1904 only.

From the above figures it is evident that smallpox has been greatly reduced in this state. The state board of health did not begin operations until May, 1901, and few if any local or county health officers were appointed until after this date. During the

remainder of 1901 seven counties reported 37 cases of smallpox. It is more than likely that only about one-tenth of the cases that occurred in these counties during this time were reported, as the physicians had not become acquainted with the requirements of the law. During 1902 14 counties reported 764 cases of smallpox, which probably represents nearly, if not all, the cases that occurred in these counties. But there were 12 other counties that did not report smallpox and as these counties are, in many cases, separated from others by lines known only to the surveyor and not recognized by disease, it is very probable that cases of smallpox did occur in counties of which no report was ever made. During the last six months of 1903, 78 cases of smallpox were reported from 24 counties, while in the full 12 months of 1904 only 122 cases were reported from 25 counties. Now if we take 1902 as a standard of conditions at the time the sanitary laws were passed (and this is the first year when even a fair report could possibly be received), we find that 764 cases of smallpox were reported from 14 counties, while in 1904 only 122 cases were reported from 25 counties. If we admit that there were no cases of smallpox in any of the 12 counties that failed to report in 1902, we still have a reduction in the number of cases of 642 cases. Later we will try to show what this reduction in the number of cases of smallpox saves to the people of the state in money.

In addition to this we find that out of the 122 cases reported during 1904 only seven were ever vaccinated. Three of these claimed to have been recently (within the last four years) vaccinated, but in not one of them did the scar indicate a successful vaccination. The other four had not been vaccinated since childhood and they were all adults. This is the evidence of our state, it is the evidence of every other state in the union, it is the evidence of every country of the world and it is so positive that the varietal tryo is forced to admit that **successful vaccination prevents smallpox.**

Here we would call your attention to the fact that very little vaccinating has been done in this state during the last three or four years, and unless the boards of health are given power to require vaccination at least among children attending school, we are bound to have another epidemic on our hands. Quarantine will help to restrict the spread of smallpox, but **successful vaccination prevents smallpox.**

Diphtheria.

County.	1902	1903	1904	County.	1902	1903	1904
Beaverhead .....	*	.....	.....	Madison .....	*	.....	1
Broadwater	18	1	.....	Meagher .....	*	.....	.....
Carbon .....	*	.....	2	Missoula	12	4	3
Cascade	19	3	73	Park	2	2	.....
Chouteau	7	2	.....	Powell .....	*	.....	1
Custer	*	4	7	Ravalli	*	1	.....
Dawson .....	*	.....	.....	Rosebud	*	1	.....
Deer Lodge.....	*	*	*	Silver Bow.....	4	65	93
Fergus .....	*	.....	.....	Sweet Grass.....	*	.....	.....
Flathead	3	2	2	Teton .....	*	.....	.....
Gallatin	4	1	1	Valley	5	.....	.....
Granite .....	*	*	.....	Yellowstone	3	2	.....
Jefferson .....	.....	.....	1				
Lewis and Clarke	8	1	46	Totals	85	89	230

* No reeport.

This shows an increase in the number of cases of diphtheria in the state, especially in Silver Bow, Lewis and Clarke and Cascade counties. Diphtheria has prevailed over the entire Northwest during the last year and an increase in the number of cases in our state is not surprising.

There is but one way in which this disease can be restricted, i. e., by absolute quarantine in every case until a bacteriological examination shows the throat to be free from the germs of this disease, and the making of a bacteriological examination in every case of sore throat in which a membrane of any kind appears, the patient remaining under quarantine until such time as the culture taken from the throat is pronounced to be free from the germs of diphtheria. These examinations should be made free of charge by the state bacteriologist and all cultures should be made by the health officer.

About the first of November an epidemic appeared in Helena that threatened to assume destructive proportions, but the prompt action of the health officer and the locating of the source of the disease in certain milk promptly checked the epidemic.

Scarlatina.

Counties.	1902	1903	1904	Counties.	1902	1903	1904
Beaverhead	29	6	4	Madison	*	15	7
Broadwater	31	33	23	Meagher	*	9	5
Carbon	6	2	1	Missoula	*	5	6
Cascade	62	47	43	Park	36	.....	4
Chouteau	1	3	.....	Powell .....	*	.....	.....
Custer	1	4	7	Ravalli	*	6	10
Dawson	*	6	3	Rosebud .....	*	.....	1
Deer Dodge.....	*	*	*	Silver Bow.....	59	40	6
Fergus .....	*	.....	2	Sweet Grass.....	*	.....	14
Flathead	8	66	3	Teton	6	1	.....
Gallatin	6	18	4	Valley	*	9	.....
Granite .....	*	*	.....	Yellowstone	24	5	2
Jefferson	*	2	.....			
Lewis and Clarke	73	52	25	Totals	242	339	179

* No reeport.

These figures show that during the six months ending December 1, 1903, there were 339 cases of scarlet fever reported. As the six months includes the vacation period of the schools it is fair to assume that at least as many cases appeared during the previous six months of the year and as only 179 cases appeared during the year of 1904, we estimate the reduction in the number of cases at 499; that is, there were 499 fewer cases of scarlatina during 1904 than there were during 1903.

When we place the death rate in scarlet fever at 10 per cent, many will say that it is too high, and no doubt it is, for all cases of scarlet fever in this state, but we must call your attention to the fact that not all cases are reported and the records show that one in every ten of the cases reported did die. Then if the work of the health officers over the state have reduced the number of cases of scarlatina from 678 to 179 in a year, then it is fair to estimate that they have saved 49 lives, to say nothing of the many diseased ears and eyes that would have resulted from these 499 cases of scarlet fever.

Typhoid Fever.

County.	1903	1904	County.	1903	1904
Beaverhead		1	Lewis and Clarke.....	14	11
Broadwater	4	.....	Madison	2	.....
Carbon	6	5	Meagher .....	.....	.....
Cascade	34	19	Missoula	45	59
Chouteau	9	.....	Park	5	6
Custer	17	7	Powell .....	.....	.....
Dawson	7	1	Rosebud	13	1
Deer Lodge	*	*	Silver Bow .....	.....	2
Fergus	11	6	Sweet Grass.....	.....	.....
Flathead	9	15	Teton .....	.....	.....
Gallatin	10	8	Valley .....	.....	.....
Granite	*	10	Yellowstone .....	.....	.....
Jefferson	1	.....	Totals	187	145

* No report.

There are no records regarding typhoid fever prior to June, 1903, and while the cases reported show that there were fewer cases in 1904 than in 1903, we are not at all satisfied that such was actually the case. The extremely dry summer made conditions very favorable for typhoid fever and we are inclined to think that the cases were by no means all reported. The fact is that we doubt if more than half of the cases were reported during either year. We can do but little to prevent this disease until such time as the health officers shall be given power to prevent not only individuals, but cities, towns and corporations from polluting our streams with sewage. Our water supply is

too limited during the summer months to permit of a single stream, no matter how insignificant, being polluted with sewage or any other matter that might result in sickness. A single stool from a typhoid fever patient thrown into one of our small streams or irrigating ditch from which milch cows drink might readily result in infection with typhoid fever of hundreds of people, through the agency of the milk. We know of one little town with an irrigating ditch running through it. This ditch is used as a sewer by most of the town and it is no uncommon sight in that town to see the bottom of the ditch almost covered with feces. From this ditch all the cows in the neighborhood drink, and some of the people depend on the waters for domestic purposes. What a chance to start an epidemic of typhoid fever. And yet the attorneys tell us that we have no power under our laws to stop such conditions.

VALUE OF SANITARY REGULATIONS FROM A MONETARY STANDPOINT.

In the foregoing tables we have shown a reduction in the number of communicable diseases. With regard to smallpox, we have shown that there were 642 fewer cases in 1904 than in 1902. There is no reason, except the sanitary laws, why there should not have been as many cases of smallpox in 1904 as there were in 1902. Therefore, we are justified in stating that the various health regulations have saved this state from 642 cases of smallpox during the year of 1904. Now it is a very low estimate to place the cost of each case of smallpox at \$50, it being very probable that the average case will cost over \$100. But at \$50 for each case of smallpox prevented, sanitary regulations saved the people of this state \$32,100 during the year of 1904. In these figures we grant that not a single one of these 642 cases would have died, which is not at all probable, for the death rate in this mild form of the disease over the entire country will reach about 2 per cent.

In diphtheria we find an increase in the number of cases, but we believe that, were it not for the efficient work of many of our health officers the number would have been multiplied many times and a great many deaths resulted from this most fatal disease.

In scarlet fever we find that the number of cases was reduced by 499. We also find that 10 per cent of the cases reported in 1903 and 1904 died. Therefore we estimate that the sanitary regulations saved 49 lives from this disease in 1904. Now, if we estimate the value of a human life at \$5,000, which is the lowest estimate placed on a human life, we have saved the state \$245,000 in lives. Now, if we estimate the cost of a case of scarlet fever at \$50, which is a very low estimate, there is an additional saving of \$24,950.

By the prevention of disease, sanitary regulations have saved the state—

By prevention of smallpox.....\$ 32,100

By prevention of scarlet fever..... 269,950

Total\$302,050

This is the result of the work in two diseases alone and does not take into consideration the financial loss to the individuals on account of loss of time from work. We can not estimate the number of diphtheria cases that have been prevented, but we do know that there would have been a great many more cases were it not for the work of the various health officers. In typhoid fever we have no comparative figures, but we believe there have been fewer cases in those counties where the health officers have taken active steps to secure sanitary conditions. The report of the N. P. R. R. Hospital at Missoula attributes the decrease in the number of diseases treated there during the last year to improved sanitary conditions in the state. In regard to tuberculosis, we have been able to do but little. This disease is evidently on the increase in our state, but our laws are in such shape that we are unable to take any steps towards preventing its spread. We have no authority to enforce proper ventilation in public school buildings; we cannot prevent tuberculosis subjects from expectorating on the floors of public buildings or public carriers, and it has proven practically impossible to secure a report of these cases from the physicians of the state. This disease is as much a communicable disease as are many of those designated in our laws and its prevention is possible. In Germany they have advanced so far in the prevention of this disease that the sanitary authorities of that country have set a date (25 years hence) when the "Great White Plague"

shall be known no more in that country. Why not do as well in this great state?

These things we have accomplished under a defective law. Each health officer is a law unto himself and responsible to no one. Fortunately, most of them have been men active in sanitary work, but a few have been inclined to do just as little work of any kind as possible. The effect of one such man is far-reaching. Lax enforcement of quarantine regulations or poor disinfection in one county means the exposure of the entire state to the communicable diseases. Give us a law that will embody the suggestions set forth on page 47 of this report and much may be accomplished.

The board is frequently in need of the services of a competent chemist and bacteriologist, in fact, we are constantly in need of the services of such experts. At present we pay for chemical and bacteriological work by the piece, but should we have all such examinations made as are indicated, our appropriation would not suffice to pay for this work alone.

To secure the needed bacteriological and chemical examinations of waters alone at from \$25 to \$50 for each examination, would more than exhaust the entire appropriation under which this board has worked. The people of our state pay exorbitant prices for antitoxines, both animal and human. The people of the City of New York are furnished anti-toxines free from the city laboratory. Our state could have a laboratory in which all these anti-toxines could be made and furnished to the people free. In addition to this, anti-toxines could be sold to other states at reasonable prices and the laboratory be made self-supporting. This could not be done on a cheap scale. The very best bacteriologist must be secured and the best apparatus furnished him. It would be criminal to have anything short of the very best in such a laboratory. St. Louis had an unfortunate experience in this matter, and gave the world a lesson that should be everlasting. A properly equipped laboratory would cost several thousand dollars, but would bring returns to the people of the state and to the animal industries that cannot be estimated in dollars and cents.

Complete Report and Summary of Bacteriological Examinations for the Bacillus Diphtheriae made for Year 1904 by Dr. C. H. Horst.

No.	Date—1904	Doctor.	City.	County.	Name of Patient.	Result.
1	February 10	Sullivan, T. J.	Butte.	Silver Bow.	Anton George	Staphylococcus pyogenes aureus.
2	February 12	Sullivan, T. J.	Butte.	Silver Bow.	Edward Murphy	No growth.
3	February 14	Dean, M. M.	Helena.	Lewis and Clarke.	(?)	Bacillus diphtheriae.
4	February 17	Sullivan, T. J.	Butte.	Silver Bow.	Teavght	Staphylococcus pyogenes aureus
5	February 17	Rinehart, J. H.	Billings.	Yellowstone	(?)	Streptococcus pyogenes.
6	February 21	Dean, M. M.	Helena.	Lewis and Clarke.	(?)	Staphylococcus pyogenes aureus
7	March 4	Sullivan, T. J.	Butte.	Silver Bow.	Walsh	No growth.
8	March 6	Sullivan, T. J.	Butte.	Silver Bow.	Walsh	Bacillus diphtheriae.
9	March 8	Sullivan, T. J.	Butte.	Silver Bow.	Link	Staphylococcus pyogenes aureus
10	March 8	Sullivan, T. J.	Butte.	Silver Bow.	Jacobs	No growth.
11	March 9	Sullivan, T. J.	Butte.	Silver Bow.	Link	Staphylococcus pyogenes aureus
12	March 18	Sullivan, T. J.	Butte.	Silver Bow.	(?)	Streptococcus pyogenes.
13	April 30	Riddell, Wm.	Helena.	Silver Bow.	(?)	No growth.
14	May 10	Sullivan, T. J.	Butte.	Silver Bow.	(?)	No growth.
15	May 11	Sullivan, T. J.	Butte.	Silver Bow.	(?)	Bacillus diphtheriae.
16	May 12	Sullivan, T. J.	Butte.	Silver Bow.	(?)	No growth.
17	May 14	Sullivan, T. J.	Butte.	Silver Bow.	(?)	No growth.
18	May 30	McNevin, M. G.	Butte.	Silver Bow.	(?)	No growth.
19	June 8	Sullivan, T. J.	Butte.	Silver Bow.	Carroll	Staphylococcus p. aureus.
20	June 12	Sullivan, T. J.	Butte.	Silver Bow.	Marks	Staphylococcus pyogenes aureus
21	June 21	Sullivan, T. J.	Butte.	Silver Bow.	(?)	Streptococcus pyogenes.
22	June 22	Sullivan, T. J.	Butte.	Silver Bow.	Robinson	Staphylococcus pyogenes aureus.
23	June 26	Sullivan, T. J.	Butte.	Silver Bow.	(?)	No growth.
24	July 10	Rinehart, J. H.	Billings.	Yellowstone	(?)	No growth.
25	August 18	Sullivan, T. J.	Butte.	Silver Bow.	Reddington	Staphylococcus p. aureus.
26	September 3	Sullivan, T. J.	Butte.	Silver Bow.	(?)	Staphylococcus pyogenes aureus.
27	September 6	Sullivan, T. J.	Butte.	Silver Bow.	(?)	Streptococcus pyogenes.
28	September 7	Owings, J. H.	Deer Lodge	Powell	(?)	Staphylococcus p. aureus.
					(?)	Streptococcus pyogenes.

Complete Report and Summary—Continued.

No.	Date.	Doctor.	City.	County.	Name of Patient.	Result.
29	September 25	Sullivan, T. J.	Butte.....	Silver Bow.....	Kayjell	Staphylococcus pyogenes aureus
30	October 2	Sullivan, T. J.	Butte.....	Silver Bow.....	Dorsh	Streptococcus pyogenes.
31	October 14	Sullivan, T. J.	Butte.....	Silver Bow.....	Young	Streptococcus pyogenes.
32	October 27	Sullivan, T. J.	Butte.....	Silver Bow.....	Ryan	Staphylococcus pyogenes aureus
33	October 27	Sullivan, T. J.	Butte.....	Silver Bow.....	Doag	Staphylococcus p. aureus.
34	October 27	Sullivan, T. J.	Butte.....	Silver Bow.....	Paynter	Staphylococcus p. aureus.
35	November 3	Sullivan, T. J.	Butte.....	Silver Bow.....	Kelley	Streptococcus pyogenes.
36	November 6	Sullivan, T. J.	Butte.....	Silver Bow.....	Boyten	Staphylococcus p. aureus.
37	November 6	Sullivan, T. J.	Butte.....	Silver Bow.....	Thurston	Streptococcus pyogenes.
38	November 7	Sullivan, T. J.	Butte.....	Silver Bow.....	Thurston	Bacillus diptheriae.
39	November 8	Sullivan, T. J.	Butte.....	Silver Bow.....	Schimph	Staphylococcus p. aureus.
40	November 8	Fligman, L. H.	Helena.....	Lewis and Clarke.....	Crayon, F.....	Staphylococcus pyogenes aureus.
41	November 9	Sullivan, T. J.	Butte.....	Silver Bow.....	Harrington	Tube sterile.
42	November 10	Sullivan, T. J.	Butte.....	Silver Bow.....	Ustan	Staphylococcus p. aureus.
43	November 4	Sullivan, T. J.	Butte.....	Silver Bow.....	Stride	Staphylococcus p. aureus.

In Silver Bow County examinations were made (with but few exceptions) at the termination of disease only. Practically no use made of Bacteriological Exams. for clinching diagnosis in Silver Bow County.

General Summary.

Month.	Tot'l No. Cultures Exam.	County.	No. C. Exam. Each.	Pos- itive.	Neg- ative.
February	6	.....Silver Bow.....	4	0	4
		....Lewis and Clarke....	1	1	0
		..... Yellowstone	1	0	1
March	6	.....Silver Bow.....	6	1	5
April	1	....Lewis and Clarke....	1	0	1
May	5	.....Silver Bow.....	5	1	4
June	5	.....Silver Bow.....	5	0	5
July	1	..... Yellowstone	1	0	1
August	1	.....Silver Bow.....	1	0	1
September	4	.....Silver Bow.....	3	0	3
		..... Powell	1	0	1
October	5	.....Silver Bow.....	5	0	5
November	9	.....Silver Bow.....	8	1	7
		....Lewis and Clarke....	1	0	1
Totals	43	Four Counties.	43	4	39

BIRTHS AND DEATHS.

During the last eighteen months the State Board of Health has made every effort within our power to secure a complete report of births and deaths in our state. We have written repeated letters to the physicians of the state urging them to conform with the law in this important matter. We have presented the subject in our Bulletins, we have published the opinions of the Attorney General with regard to the requirements of the law and the penalty for failures to report, and we have filed complaints against those failing to report in several counties. Our complaints have been pigeon-holed by various county attorneys and have thus made it apparent that the law in this matter may be disregarded with impunity.

However, there would be little use in prosecuting as the chances are very largely in favor of acquittal by a jury. The physicians will simply claim that they fully intended to make this report, but that it simply slipped their minds, and the jury would bring in a verdict of "not guilty."

The fact is, this quarterly report law is useless. It has been proven useless by other states and abandoned by many. Not a single state working under a law of this character has any records of births and deaths that are worth the paper they are written on.

If our state is to keep pace with other progressive states in matters pertaining to life and health, we must have an immediate report law, a law containing the essential features of the one drawn up by the U. S. Census Bureau and U. S. Public Health and Marine Hospital Service. Last February Congress passed a joint resolution urging all states to pass a registration law embracing the essential features of this law.

As a demonstration of the inefficiency of our laws regarding the registration of births and deaths, we present the following figures, as received from the various clerks, for the year ending September 30, 1904. The City of Butte, which we have adopted as a standard for the state, has an immediate report law and all births and deaths are reported to the city health officer. Nobody can be buried in the City of Butte without a permit from the city health officer.

Births and Deaths Registered in the Various County Clerks'
and Recorders' Offices During the Year Ending
September 31st, 1904.

COUNTY	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	Deaths.....	Births.....	Deaths.....	Births.....	Deaths.....	Births.....	Deaths.....	Births.....	Deaths.....	Births.....
Beaverhead	11	12	8	13	3	8	7	15	29	48
Broadwater	3	9	5	16	5	11	3	4	16	40
Carbon	13	16	4	10	1	9	4	11	22	46
Cascade	37	117	61	116	9	35	32	69	139	307
Chouteau	7	21	2	18	9	14	7	10	26	63
Custer	7	14	0	15	0	2	1	5	8	36
Dawson	2	11	1	21	2	11	2	4	7	47
Deer Lodge	14	54	13	20	9	7	2	11	38	92
Fergus	9	50	6	0	6	23	0	0	15	73
Flathead	29	34	31	36	15	19	16	30	91	119
Gallatin	9	52	11	30	10	14	5	2	35	98
Granite			2	9	3	14	0	0	5	23
Jefferson	13	12	6	16	3	8	0	0	21	36
Lewis and Clarke.....	18	42	35	50	26	35	9	28	86	155
Madison	12	36	0	0	0	8	0	0	12	44
Meagher	3	2	2	6	0	7	4	9	9	24
Missoula	31	59	21	54	13	34	5	29	70	176
Park	9	25	8	7	10	24	7	30	34	86
Powell	2	3	7	5	6	5	6	5	21	18
Ravalli			0	0	2	21	0	0	2	21
Rosebud	4	5	1	8	4	9	3	7	12	29
* Silver Bow	161	221	173	205	168	230	197	266	698	922
Sweet Grass	4	17	3	14	2	12	7	13	16	56
Teton	10	13	6	12	4	18	2	15	22	58
Valley	12	23	9	13	0	3	9	17	30	56
Yellowstone	13	27	5	22	3	35	4	13	25	99
Totals	442	875	414	719	328	629	332	563	1470	2827

* Registered in City Health Office.

The above figures show that in the city of Butte, with only 19 per cent of the population of the state, there were reported 47.5 per cent of all the deaths reported in the state and 32.6 per cent of all the births reported.

Assuming that the conditions existing in Butte with regard to births and deaths is a fair standard for the state, then there should have been 3,673 deaths reported in the entire state. In other words, there were 2,203 deaths in this state during the last year that were never recorded in any recorder's office, and this after repeated notices to the physicians of the state urging them to comply with the law in this respect.

It may be claimed by some that there are not as many deaths in other places in the state as there are in Butte on account of the mining accidents there. This point was considered and before looking into the matter we were inclined to credit Butte with more deaths to the extent of the deaths due to mining accidents there, but on a careful study of the causes of deaths as coming from other parts of the state, we find that there are as many deaths due to violence, in proportion to the whole number reported, as there are in Butte in proportion to the whole number reported there. With these facts before us we can see no reason why the death rate should be higher in Butte than it is in Missoula or Deer Lodge, or any other county in the state. The fact is that about 2,200 people died in this state last year of whose death no record was made, and practically the same condition prevails with regard to births.

It is a shame that a condition such as this should exist in a state as progressive as ours and we therefore urge the Honorable Legislature to give us a law that will place our state upon the list of "Registration States."

The importance of registration of births and deaths is admitted by all. There is not a man who has a thoroughbred cow or horse, or even a thoroughbred dog, who would lose any time in seeing that it was properly registered. Failure to register your thoroughbred stock may deduct a few dollars from their sale price, but failure to register the birth of a child or the death of a parent may deprive the child of all interest in the estate it is entitled to; yes, it may deprive the child of its very name. No man can be absolutely sure that the legal register

of the county in which he was born will never be required to determine his rightful name.

We insist that our fine cows, our horses, our dogs be registered, but what about our children? Let us have a law that will, in no undecided terms, absolutely require that every child that is born in this state have his or her name properly registered in the proper records of this state, and when any one in our state, old or young, goes to that city from whose bourne no traveler has ever returned, let such departure be properly recorded. Let us give our children at least as much thought as we do our yellow dogs.

